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ON

THE ARTERIAL PULSE: ITS PHYSIOLOGY AND PATHOLOGY.

Delivered before the Royal College of Surgeons of England on March 23rd, 1906,

BY SYDNEY WALTER CURL, M.A., M.D.CAMB., M.R.C.P. LOND.,

PHYSICIAN TO THE ESSEX AND COLCHESTER HOSPITAL.

[DR. CURL commenced his lecture by a few remarks upon the nature of the pulse as held by the ancients, referring to, amongst others, Erasistratus[1]* and Nicolas de Cusa.[2] Coming down to modern times he reviewed the opinions of various observers—such as Ewart, Sansom, and Spallanzani[3]—as to whether the pulse is due to an expansion of the artery or not and gave it as his own opinion that whilst the pulse in the main is produced by the increase of pressure in the arteries, yet there is a certain amount of arterial expansion at the same time. He then passed on to consider the physiology of the pulse curve (Landois[6] and Czermak[7]) and referred to the two methods of investigating the pulse—namely, by means of the finger and by means of the sphygmograph. He discussed the effects on the pulse of arterial tone and peripheral resistance and gave the characteristics of the normal pulse. Continuing his remarks, he proceeded to discuss the meaning of the various portions of the pulse curve—such as the dicrotic[8] and predicrotic[9] waves—as traced by the sphygmograph. He next passed on to consider—]

THE PATHOLOGY OF THE PULSE.

Causes giving rise to pathological pulses may act in several different ways, of which the following are the main. In the first place, they may act by disturbing the normal nervous mechanism for the control of the action of the heart. They may stimulate or paralyse the inhibitory cardiac mechanism, that is, the vagus centre or nerve; or the accelerating system of cardiac nerves—namely, the sympathetic—may be also either stimulated or paralysed, and in both these ways the pulse frequency may be altered; in many cases it is impossible to tell which system is affected. Increase of the general blood pressure, however, is said to cause slowing of the pulse-rate by stimulation of the vagus centre[7]; the slow pulse found in the early stages of cerebral compression is also said to arise in the same way, whilst the rapid pulse found in cases of acute febrile diseases is supposed to be due to a suspension of the functions of this centre,[10] produced by the action on the centre of toxic products present in the blood in these conditions. Alteration in the frequency of the pulse may be due to some lesion involving the trunk of the vagus, for example, slowing of the pulse has followed accidental ligature of one vagus,[12] and a neuritis involving the trunks of the vagi may cause the pulse to become very frequent, as in some cases of diphtheritic or alcoholic neuritis. Of alterations in the pulse dependent upon changes affecting the intrinsic nervous mechanism of the heart nothing definite is known. Secondly, the functions of the cardiac muscle may be disturbed and thus give rise to abnormal states of the pulse. Imperfect nutrition of the cardiac muscle from imperfect blood-supply or from abnormal states of the blood may cause impairment of the functions of the heart and so disturb the normal beat. It has been shown that diminution of the property of conduction of some of the cardiac muscle fibres may give rise to irregular forms of pulse.[14] Interference with the contractile power of the heart by adhesions to neighbouring parts, obstruction to the free exit of blood from its chambers or the passage of blood in an abnormal direction, may mechanically give rise to abnormalities of the pulse.

A third way in which alterations in the pulse may be produced is by changes in the state of the circular muscular fibres of the arterioles, by a retraction or relaxation of these, and by a stiffening or rigidity of the walls of the arteries, as a result of organic changes in their coats. In some cases of arterial retraction—as, for example, during rigors—it appears that the vaso-constrictor centres are stimulated; in other cases, as in Bright's disease, either the nerve terminations in the muscular fibres or the muscular fibres themselves are directly stimulated by poisonous bodies present in the circulating blood. Lastly, modifications of the activity of both the vaso-motor centres and the cardiac nervous mechanism may be produced by reflex actions of various kinds and also by impressions arising in the higher centres of the brain, and by these means changes in the form of the pulse brought about.

Owing to the difficulty of deciding through which channel disturbance of the characters of the pulse is brought about a classification of the forms of pathological pulses by these means is at present impossible; the simplest method, and the one which I have followed, is to classify them according to the chief departure from the normal they exhibit; thus they may appropriately be divided into the following groups: (1) those in which changes in the frequency occur; (2) those exhibiting changes in the tension of the vessel wall; and (3) those in which irregularity is a marked feature. A few which cannot be classified according to this method I have considered separately.

Abnormally frequent pulses.—Increased frequency of the pulse-rate may be produced by the following pathological conditions.

1. The absorption of toxins of bacterial origin. Under this head may be included the acute infectious diseases and diseases of an acute inflammatory nature associated with a rise of the body temperature. As our knowledge of the pathology of infectious diseases and acute inflammation progresses the idea is more and more becoming fixed that in most, if not in all, cases of such a kind we have to deal with the presence of micro-organisms and their toxins and that it is owing to the absorption of these latter poisons that symptoms of disease arise. With a rise in the body temperature the pulse-rate increases in frequency; according to Liebermeister,[10] for every rise of one degree Fahrenheit the pulse-rate increases by eight beats per minute and whilst this rule cannot be held as absolute any marked departure should be carefully noted. With this increase of pulse-rate both the systolic and diastolic periods are shortened, especially the latter. The increased frequency of the pulse in fever Fredericq[10] thinks due to a suspension or diminution of the vagal inhibitory power over the heart, and this from the fact that in rabbits, where the vagus has no cardio-inhibitory power, with a rise of body temperature the pulse-rate is not increased. Accompanying these changes the cutaneous vessels and the arterioles throughout the body are dilated and the vessels generally relaxed; the blood pressure generally falls. From all these causes combined the pulse in well-established febrile states exhibits the following characters; it is often larger than usual, it is more frequent, more abrupt, and subsides more quickly than a normal pulse. Dicrotism is often well marked. In some cases where the blood pressure is considerably lowered the down stroke of the primary wave may reach the base line before the dicrotic wave appears, giving rise to the so-called "fully dicrotic pulse," or it may even fall below the base line forming the "hyperdicrotic pulse"; this latter, however, according to Mackenzie,[4] does not necessarily indicate great lowering of arterial pressure; it occurs, he says, when the pulse is very rapid and is produced by the ventricular systole being felt in the arteries before the dicrotic wave of the preceding beat has ended. In those cases of acute disease in which shivering or rigors appear at the outset, as in the cold stage of a malarial paroxysm, it is said that with a general retraction of the superficial vessels the pulse, although frequent, is small and its tension increased. When in the course of such diseases cardiac weakness becomes pronounced the pulse becomes of low tension and irregularity is apt to make its appearance. In certain cases of inflammation of serous membranes, such as pleurisy, peritonitis, &c., Broadbent[8] says the vessels, instead of being relaxed, are contracted and the pulse small and hard, especially so in the latter disease, and in the later stages of peritonitis we find the small, frequent, thready pulse familiar to all. In a person with a habitually irregular pulse the onset of an acute febrile disease with

* The "superior," or raised, figures occurring throughout the lecture refer to the bibliography at the end.

increased frequency of the beat of the heart may cause it to become quite regular for the time being.[4]

2. The presence of malignant disease[4] in any part may give rise to increased frequency of the pulse-rate without there being any rise of temperature, but upon what this depends is unknown.

3. Affections of the heart, valvular disease, chiefly mitral, some cases of myocardial degeneration, dilatation from causes other than those of valvular lesions, and many of those conditions included under the term "heart strain," may be associated with rapid pulse.

4. Functional disturbance of the heart's action such as may be produced by mental emotions of various kinds, may give rise to increased frequency of the pulse. In hysteria and neurasthenia a frequent pulse is not uncommonly found. In the condition called "paroxysmal tachycardia" sudden attacks of greatly increased frequency of the pulse occur at variable intervals, 200 or more beats per minute being frequently found; after lasting a variable time the attack passes off suddenly. These attacks may occur in persons in whom there can be found no demonstrable lesion of the heart and nothing definite is known as to the cause of these phenomena. Some suppose they depend upon stimulation of the sympathetic, others that they are due to suspension of the inhibitory action of the vagus. Mackenzie[4] thinks that many of these cases are produced by the occurrence of a series of premature systoles of the ventricle, as he has found that in many of such cases he has been able to demonstrate groups of premature systoles, interrupted here and there by beats of a normal character.

5. Exhaustion from whatever cause arising is often accompanied by increased frequency of the pulse; for example, after severe muscular fatigue and in the latter stages of many chronic diseases. In shock and sometimes in the anæmias, especially chlorosis, the pulse may be abnormally frequent.

6. Certain organic nervous diseases are often associated with a pulse of increased frequency; in persons dying from cerebral hæmorrhage, in the terminal stage of meningitis, and in the early stage of locomotor ataxia a rapid pulse is often found to exist, in the first two cases owing most likely to some disturbance of the vagus centre.

7. In exophthalmic goitre tachycardia is one of the cardinal signs and often a very early one. In this disease the pulse-rate is generally over 100 per minute, sometimes 200 or more; in addition, the tension is low and the beats small. Another peculiarity of the pulse in this affection is the extreme variability of its frequency, even within a few seconds; in a case recently under my care its rate would frequently drop from 160 or more beats per minute to the normal within a few seconds and from this patient I have obtained tracings exhibiting bigeminal, trigeminal, and quadrigeminal characters, and two beats of the heart to one at the wrist was frequently to be observed. The fact that the administration to animals of large doses of thyroid substance will cause tachycardia and other symptoms resembling Graves's disease in man[11] tends to show that the rapid pulse met with in this disease may be dependent upon either a diminution or suspension of the inhibitory function of the vagus or an excessive stimulation of the sympathetic, whether this be produced by the circulation in the blood of an excessive amount of the normal thyroid secretion or of some of the products of abnormal activity of this gland.

Abnormally slow pulses.—Slowness of the pulse is only a relative term, since what might be considered slow for one person might be normal for another, both being in perfect health. A pulse of less than 40 beats per minute is of uncommon occurrence, though cases have been described in which only six beats per minute have been observed.[17] In all cases of infrequent pulse it is important to auscultate the heart at the same time as counting the pulse, since many of these cases are due to the fact that the heart at regular or irregular intervals contracts too feebly to cause a wave of pulsation to be felt in the peripheral arteries. What are the pathological conditions giving rise to these pulses? 1. Whatever causes a rise of blood pressure tends to cause a slowing of the pulse-rate; thus, in acute and chronic forms of nephritis and in certain forms of arterio-sclerosis, where a high blood pressure is the rule, the pulse-rate is commonly lowered, possibly a result of stimulation of the vagus centre by the high blood pressure. 2. The retention or accumulation in the body of certain products of an irritant nature; under this heading may be included those cases of infrequent pulses met with in chronic gout, chronic dyspepsia, constipation, jaundice, and also after the excessive use of such cardiac poisons as tobacco. Whilst in some of these cases the way in which the infrequent pulse is produced is unknown, in jaundice, according to Wickham Legg,[12] it arises as a result of the action of the cholalic acid on the ganglia of the heart. 3. Nervous affections. In both functional and organic diseases an infrequent pulse is sometimes observed; thus it may occur in attacks of minor or major epilepsy and in that combination of symptoms the Stokes-Adams's syndrome forms a characteristic feature. In cases in which there is an increase of the intracranial pressure, as in cerebral hæmorrhage, abscess or tumour of the brain, and meningitis with effusion, it is often less frequent than normally, most likely the result of stimulation of the vagus centre in the medulla. That in cases of cerebral tumour the increase of intracranial pressure is the main factor concerned in the production of the infrequent pulse has been shown by the fact that after trephining, and thus diminishing the pressure within the skull it becomes more frequent.[24] In some cases of mental disease, as in melancholia, some cases of general paralysis, and some forms of mania, the pulse is sometimes less frequent than normal, but in what way these diseases and an infrequent pulse are associated is unknown. 4. Exhaustion of the physical or mental powers. In convalescence from prolonged illnesses, after recovery from attacks of acute febrile diseases, after severe muscular or mental exertion, in the early stages of shock,[25] and after severe bouts of pain, the pulse is liable to undergo some diminution in rate. 5. Chronic bronchitis and emphysema are stated to give rise to infrequent pulse but how this effect is produced is quite unknown. I have had under my care recently a boy with well-marked emphysema of the lungs and whose pulse was, in the intervals between the attacks of bronchial catarrh from which he frequently suffered, considerably below the normal in rate and generally averaging about 46 beats per minute. 6. In certain degenerative changes in the heart muscle, such as fatty or fibroid changes, a sign which is sometimes but by no means constantly present is diminution of the pulse-rate.

There are three ways in which infrequency may be produced. 1. The heart as a whole may beat at a less frequent rate than it normally should. 2. Some of the ventricular contractions may be too weak to send a wave of pulsation to the peripheral arteries and if these weak contractions occur sufficiently often and at regular intervals we have produced an infrequent, regular pulse. In the case of a woman with mitral disease who had long been under treatment with digitalis for failing compensation I found on several occasions that with an infrequent pulse the heart was beating in couples twice as quickly, the latter beat in each couple being too feeble to cause a pulsation to be felt in the radial artery; this condition disappeared when the digitalis was stopped. In the case of Graves's disease already referred to, although the pulse-rate never fell below normal, yet on many occasions I have found that with a relatively infrequent pulse the heart was beating at double the rate. 3. Although the auricles may beat at a normal rate the ventricle may fail to respond to every auricular contraction; if this occur at varying intervals we obtain an irregular pulse; if at regular intervals and sufficiently often an infrequent pulse results. In a series of recent experimental observations Mackenzie[14] has shown that some cases of bradycardia at least result from this cause and the failure of response of the ventricle to every auricular contraction he considers due to the incomplete recovery of the conducting property of the muscle fibres at the point of union of auricle and ventricle.

Just as there are cases in which the pulse-rate may at varying intervals become very rapid so there are cases in which it may be greatly diminished in frequency—so-called "paroxysmal bradycardia." In a case of this description described by Dr. John Hay,[13] although the pulse at the wrist varied from 17 to 30 beats per minute it was believed that the auricles were contracting much more frequently; on post-mortem examination there was found to be a great thinning of the tissues connecting the auricle to the ventricle. From this it was concluded that the stimulus to ventricular contraction, which normally spreads from the auricle, was unable to pass over this thinned bond of union and having, therefore, to originate in the ventricle itself an infrequent contraction of this chamber and a corresponding pulse were the result.

Pulses of increased tension.—What constitutes normal tension? Every individual has a certain pulse tension which

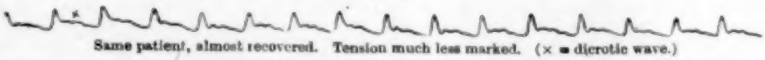
FIG. 1.

Female, aged 19 years. Acute Bright's disease. Artery retracted. High-tension pulse. (× = dicrotic wave.)

FIG. 2.

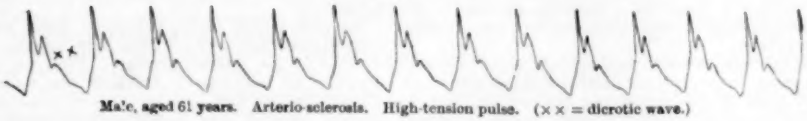
Same patient, one week later. Artery larger. High tension still marked. (× = dicrotic wave.)

FIG. 3.



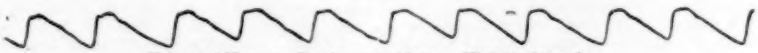
Same patient, almost recovered. Tension much less marked. (× = dicrotic wave.)

FIG. 4.



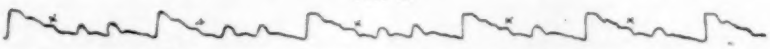
Male, aged 61 years. Arterio-sclerosis. High-tension pulse. (× × = dicrotic wave.)

FIG. 5.



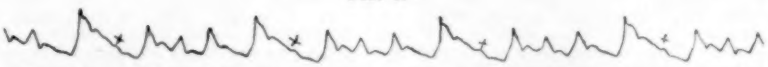
Male, aged 18 years. Emphysema of lungs. High-tension pulse.

FIG. 6.



Irregular pulse in case of Graves's disease. Dilated heart. Large pulsations followed by (×) small ventricular contractions.

FIG. 7.

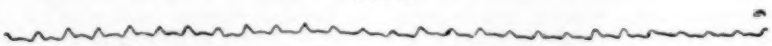


Same patient. Large pulsations followed by very small pulsation and then by (×) small ventricular contractions.

FIG. 8.

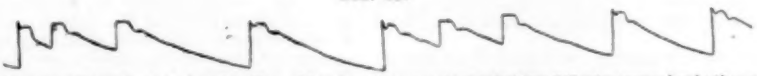
Same patient. Large pulsations followed by (×) small ventricular contractions.

FIG. 9.



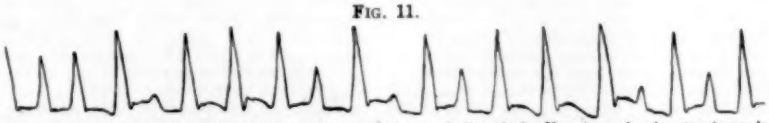
Same patient during an attack of acute bronchial catarrh. Small, slightly irregular, low-tension pulse.

FIG. 10.



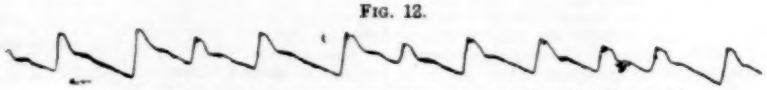
Female, aged 42 years. Disseminated sclerosis. Normal heart. Two premature pulsations following normal pulsation and followed by long pause and then large pulsation.

FIG. 11.



Male, aged 41 years. Double mitral disease. Compensation much disturbed. Very irregular, low-tension pulse.

FIG. 12.



Same patient. Irregularity less marked and tension good after rest and treatment.

although normal for the individual in question may not be so for another person and it is only by the examination of a large number of healthy persons and noting the great variations which may occur in the characters of their pulses that any definite idea of the limits of normal tension can be arrived at. Mahomed's[15] rules for the detection of high tension are: (1) in a sphygmogram, if any part of the tracing rise above a line drawn from the apex of the percussion wave to the bottom of the dicrotic notch high tension is present; and (2) if the systolic period of the pulse tracing occupy more than two-fifths of the whole duration of the curve a high-tension pulse exists. Both these rules are very useful, especially from the fact that they admit of easy application. In a well-marked high-tension pulse the following characters may be noticed: the pulse, which may be large or small, according to the force of the ventricular contraction and the relaxation or retraction of the arteries; the vessel feels full between the beats and considerable pressure is required to annihilate the pulsation in it. In a sphygmogram we find the downstroke of the primary wave is generally less abrupt than in a normal tracing, the predicrotic wave is often well marked, especially in renal cases, and the dicrotic notch, sometimes well marked, at other times hardly visible, is high above the base line.

Theoretically, high tension may arise in many different ways; in practice, however, three chief modes are concerned. 1. Increased force of the ventricular contraction, such as occurs during severe muscular exertion; this is of especial importance in cases where the arteries are extensively degenerated, since it may undoubtedly induce rupture of such vessels or favour their yielding. 2. Increase in the volume of blood in the heart or vessels, either indirectly by the absorption of large quantities of fluid from the intestinal tract, or directly by infusion of solutions of various kinds into the vessels, such as is often employed in shock. 3. Increase of the peripheral resistance. This may be induced by spasm of the arterioles of a temporary character, such as occurs during rigors, when the body is exposed to great cold, in migraine, &c. In certain organic diseases a high-tension pulse is a prominent sign; it is usual in acute and chronic Bright's disease, in granular kidney, in chronic gout with which interstitial changes in the kidney are often associated, in some cases of diabetes,[2] angina pectoris, and arterio-sclerosis. In acute Bright's disease at first the arteries are considerably retracted and the pulse feels small; high tension is, however, present almost from the beginning; later, the vessels become larger but high tension continues as long as the disease is in progress, subsiding gradually as recovery occurs. In a sphygmographic tracing the predicrotic wave is generally very well shown and the pulse is somewhat infrequent. In chronic Bright's disease (including the granular kidney), especially the latter, high tension is usually most marked, and in addition there is usually considerable thickening of the coats of the arteries. The cause of the high-tension pulse found in these kidney affections appears to be retraction of the circular muscular fibres of the smaller arteries, resulting from the presence in the blood of bodies of a poisonous nature;[23] that it does not depend upon the changes in the kidney seems probable from the fact that in tuberculous disease of these organs, where large portions of the kidney substance may be destroyed, and in waxy disease high tension is not the rule.[15] In the more chronic cases, however, probably the main factor producing obstruction to the circulation of the blood and a consequent high tension is a general fibrosis of the coats of the small vessels.

In cases where the resistance to the flow of blood through the arterioles is increased by spasm of their muscular coats or by thickening and rigidity of their walls, in order to supply the tissues with an adequate quantity of blood, the force of the ventricular contraction must be increased; when this increase of peripheral resistance is of a temporary nature it is overcome by the utilisation of some of the reserve power which the cardiac muscle normally possesses; when the increase is more permanent the reserve power of the heart is unable to cope with the increased amount of work thrown upon this organ; to do this the power of the heart must be absolutely increased and this is brought about by hypertrophy of its muscular walls. By these means the circulation is efficiently maintained and the blood pressure is kept high; ultimately, however, either from an increasing obstruction to the blood-flow through the smaller arteries or to the limits of cardiac hypertrophy having been reached, disturbance of this perfect compensation arises, the heart muscle yields, dilatation sets in, the blood pressure falls, and the circulation is no longer efficient.

In pregnancy the pulse tension is raised[20] and here cardiac hypertrophy, increase in the volume of the blood, and possibly the retention of effete matters in the blood, may all assist in its production. In some cases of anæmia, especially in the "secondary" anæmias and in certain cases of angina pectoris, high tension is present, in the latter often a result of general arteriole spasm.

Pulses of low arterial pressure.—In a well-marked case of low arterial pressure the pulse assumes the following characters: both the impact of the pulse wave and its subsidence are sudden; when the arterial pressure is very low the finger may feel merely a slight tap as the pulse wave passes[4]; between the beats the vessel feels empty. The condition of the dicrotic wave varies. In some cases it is very well marked and may be almost as large as the primary wave; at other times, especially in those cases in which the arterial pressure is very low, it may be scarcely discernible; the bottom of the dicrotic notch is close to the base line of the tracing and the predicrotic wave is either absent or ill defined.

As with pulses of high tension, there are three chief factors concerned, either single or together, in the production of low arterial pressure. First, feebleness of contraction of the heart. Amongst the various conditions giving rise to this may be mentioned exhaustion of the general physical tone in whatever way produced, prolonged fever and the action of toxins of bacterial origin, such as may arise in acute febrile diseases, and degeneration of the muscular tissue of the heart or dilatation of its chambers, the ultimate effect of all of which is to lessen the power of the heart. Secondly, diminution of the volume of blood in the heart and vessels. Loss of large quantities of blood, as, for example, during surgical operations, and draining away of large quantities of liquid from the body, such as occurs in prolonged vomiting or diarrhœa, may all help in producing low arterial pressure. Thirdly, diminution of the peripheral resistance by dilatation of the arterioles. In fever such a condition is present and the tension of a pulse originally high may on the occurrence of an acute febrile process be much lowered, though whether or not any serious diminution of arterial pressure may in these cases be brought about by such means is doubtful. In shock the low arterial pressure found has been considered to be due to a vaso-motor exhaustion[19] and a relaxation of the peripheral vessels; on the other hand, it has been argued that there is no relaxation but an actual contraction of the arterioles in shock and that the low blood pressure which arises is produced by a later relaxation of the vessels of the internal parts.[23]

It may here be mentioned that high and low tension pulse are, after all, only relative terms—one person may have habitually a pulse of high pressure and another one of low pressure and yet both may be in perfect health. The limits of normal tension are wide and when in A the tension is found to be high and in B low due consideration must be allowed for individual variations, and unless the diminution or increase in arterial pressure be marked probably not much importance should be attached to these variations unless other indications of disease appear.

Pulse irregularity.—Mackenzie[4] divides pulse irregularities into two varieties: first, the youthful form, in which the systolic period of the pulsations is quite regular but in which the length of the diastolic periods varies; this, he finds, occurs in some cases of slowing of the pulse after infancy and after febrile diseases; and, secondly, the adult form of irregularity, in which premature systoles of the ventricle occur, and according to the number and times of occurrence of these imperfect ventricular contractions many different forms of pulse irregularity are to be met with. If a premature systole occurs soon after every full beat and is followed by a pause we have produced the "pulsus bigeminus," a form not uncommonly found in cases of mitral disease and as an effect of the action of digitalis. It is also said to be frequently present in those cases of muscle failure of the left ventricle, from whatever cause arising.[10] When two premature systoles occur after every full beat we have produced the "pulsus trigeminus," when three the "pulsus quadrigeminus," and according to the time of occurrence of these premature ventricular contractions many different forms of pulse irregularity may appear.

Amongst the numerous causes of irregularity may be mentioned nervous excitement, palpitation of the heart, and

exhaustion of the physical or mental powers; pressure upon, or displacement of, the heart, as may occur in cases of flatulent distension of the stomach or intestines, is also said to be a cause of pulse irregularity. I am rather sceptical of this mode of origin of irregular heart action, as in many cases of pleural effusion or ascites where pressure upon, or displacement of, the heart may be marked the heart does not often become irregular unless other conditions exist which may produce it. The excessive use of such articles as tea, coffee, and tobacco may cause an irregular pulse.

In a state of health the respiratory movements have no definite influence in affecting the character of the pulse-tracings. In some cases of disease where there is an interference with the free entry of air into the lungs during inspiration the beats become small, to increase again in size with expiration; I have found such a pulse in a case of pneumonia complicating subacute rheumatism. In the pulsus paradoxus this diminution in the size of the pulsations during inspiration becomes very marked and the pulsations may even disappear during inspiration; at one time supposed to arise as a result of a constriction of the aorta by fibrous bands, which during inspiration might constrict the lumen of this vessel, such an explanation will not suffice, as this kind of pulse has been found in other conditions which by themselves could not act in this way. It has been found in cases of chronic mediastinitis, of which it is supposed to be an important sign, in cases of mediastinal tumour, in mitral incompetence with dilatation of the heart, and in other conditions. It has been found in one radial only.[18] At present we do not know in what way it is produced.

As a more or less permanent condition pulse irregularity occurs in valvular disease of the heart, especially in mitral lesions, in degenerative changes in the heart muscle, in dilatation, and in some cases of meningitis. The pulse irregularity which is common in the later stages of mitral disease Mackenzie[4] thinks is due to a partial paralysis of the left auricle; from this results an irregular discharge of blood from this chamber, irregular stimulation of the ventricle, and consequently an irregular pulse.

In some cases of irregular pulse the whole heart participates in the irregular action; in others the irregularity is apparently confined to the ventricle. In a recent paper Mackenzie[14] has shown that he has experimentally been able to verify the statement of Wenkebach, that when one of the functions of the heart muscle is depressed an irregularity peculiar to this function would be found. He investigated the condition of conduction of the muscle fibres between the auricle and ventricle and he did this by taking tracings from the jugular vein (which show auricular and carotid pulses) and comparing them with tracings from the radial artery taken at the same time. The period of time intervening between the commencement of the auricular contraction and the carotid beat, which normally occupies one-fifth of a second, he finds may be increased without there necessarily arising irregularity of the pulse. In some cases, however, of irregular pulse he has found that this interval of time may be progressively increased, and indicating, as it does, a depression of conductivity of the muscle union between auricle and ventricle, the stimulus to contraction may at times be unable to pass over from auricle to ventricle and a missed beat results. If this depression of conductivity occurs at regular intervals the ventricle may fail to respond to every auricular contraction and a slow pulse may result.

Lastly, pulse irregularity is said to occur in some persons who are apparently in perfect health and in whom no cause for this abnormality can be found.

The pulse in cardiac disease.—With the exception perhaps of aortic regurgitation, there is no disease of the heart which can be said to give a pulse in any way characteristic of the morbid lesion. The typical pulse of incompetence of the aortic valves is one which arises and subsides suddenly—the so-called water-hammer pulse. In a sphygmogram we find a sudden and generally large upstroke followed by a rapid fall, these characters depending upon a great and sudden increase of pressure in the artery produced by the hypertrophied ventricle and the sudden lowering of arterial pressure, the result of the regurgitation back into the ventricle of a quantity of blood which normally should be propelled on into the distal vessels. The dicrotic wave varies. When the regurgitation is marked this wave may be almost or entirely absent; with less regurgitation it may be well shown. Broadbent[9] says that the pulse in this disease depends a good deal upon its mode of origin; if arising from endocarditis it possesses the characters already noted; if due to atheroma and associated with aortitis deformans, although the wave arrives and subsides quickly, there is no real collapse. It seems to me that these differences depend upon the presence or absence of stenosis of the aortic orifice; if stenosis be absent, as it may be in those cases resulting from endocarditis, the pulse will be of the water-hammer type; if, on the other hand, stenosis be present, then the up and down strokes of the pulse tracings will be much less abrupt, the collapsing character will be much less marked, and the summit of the primary wave will be more rounded.

In stenosis of the aortic orifice the pulse wave arrives in a slow, leisurely way, the narrowing of the orifice preventing the full effect of the ventricular contraction being felt at once in the aorta[4]; in a sphygmogram we find a sloping upstroke with a broad summit; there is no sudden subsidence of the wave as in the previous condition. It is in this form of valvular lesion that "anacrotic" tracings are commonly found to occur; they are, however, not characteristic of this affection. In some cases the apex of the primary wave is divided into two parts constituting the "pulsus bisferiens," the mode of production of which is doubtful, some thinking it indicates that the ventricle contracts in two stages, others that it is an artificial production.[4] In one case reported it was found on one side only and no definite cause for this unilateral condition was found.[20]

In mitral disease, either stenosis or regurgitation, the pulse exhibits no special characteristics. Theoretically, one might suppose that in stenosis the pulse would be small, but this is by no means the rule. In both forms of valvular defect, when compensation is well maintained the pulse may be quite normal in character; in the later stages, with excessive dilatation of the left auricle, it tends to become rapid and to exhibit marked irregularity in both size and time; the tension, also, in the later stages is apt to become very low.

Dilatation of the heart from other causes than those of valvular defects brings with it no characteristic changes in the pulse, any changes that may be found depending upon the side of the organ affected and on the cause giving rise to the dilatation.

The pulse in aneurysm.—In cases of aneurysm of the aorta involving that portion of the arch between the origins of the innominate and the left subclavian arteries, important differences may be found in the pulses in the two radial arteries, these differences depending upon compression of the left subclavian by the aneurysmal sac or by obstruction of its lumen by blood clot or narrowing of its orifice by atheromatous changes, and unless some such obstruction exist no difference in the two radial pulses may be found.[4] Compression of a vessel by tumours may produce exactly similar alterations of the pulse as are produced by aneurysm. As a result of the obstruction to the flow of blood along a vessel affected in any of these ways, the pulsation in the vessel beyond the obstruction appears more gradually and reaches its maximum more slowly than that in the corresponding vessel of the opposite side. In a sphygmographic tracing this is well seen, and further, such a tracing shows a rounded summit and a downstroke almost or entirely devoid of secondary waves. In some cases this obstruction of the lumen of the vessel may be so marked as almost to annihilate pulsation in it; this was well shown in a case I had recently the opportunity of examining. The patient, a man, aged 55 years, with the physical signs of aortic regurgitation, developed inequality of the radial pulses, the left being smaller and exhibiting a tracing indicative of obstruction to the free passage of blood into it. On the day preceding death the pulsation in this vessel could hardly be distinguished, that in the right radial remaining large and of its usual characters. On post-mortem examination, a fusiform aneurysm was found involving the aorta, extending from the origin of the left subclavian to a point about two and a half inches beyond. On opening up the aneurysmal sac, which contained some partly organised clot, the orifice of the left subclavian artery was found to be almost entirely obstructed by clot, removal of which showed an orifice just large enough to admit a probe.

Is there delay of the pulse in the vessel beyond an aneurysm? Certainly, from digital examination of the radial arteries in a case such as the one I have already described and a comparison of them, one gets the impression that there is. Mackenzie, however, thinks this delay is apparent only and that it is due to the fact that in the vessel beyond the aneurysm the maximum force of the beat is not attained so suddenly as in the corresponding vessel of the

opposite side. Further, he has shown that in aortic regurgitation, in which the pulse has been supposed to be delayed, such is not the case. By comparing tracings obtained from the apex beat and radial artery of patients suffering from this disease with similar tracings obtained from persons in whom there was no disease of the heart, he has found that the period of time intervening between the apex beat and the radial artery pulsation, is the same in both.

CONCLUSIONS.

The arterial pulse represents in the main the sudden increase of pressure occurring in the arteries as a result of the ejection into them of the contents of the left ventricle, and it travels from the heart to the peripheral parts in the form of a wave, diminishing in size as it passes along. The pulse curve represents the changes occurring within the artery at the part under examination. We have seen that its form varies according to the force of the contraction of the ventricle, to the blood pressure, to the condition of the vessel wall, and to the distance of the vessel from the heart. This sudden increase of pressure in the arteries having reached its maximum is followed by a fall, the fall, however, being interrupted by a slight increase of pressure as the dicrotic wave appears; it then returns to the normal.

We have seen that the dicrotic wave, whilst not capable of being fully explained, still appears to arise as a positive wave from the closed aortic valves; of the other secondary waves we know very little about their modes of origin. Further, we have seen that the factors concerned in the regulation of the normal pulse, and disturbance of which may cause the pulse to assume various forms of abnormality, are the integrity of the heart muscle and maintenance of its functions, the condition of the vessel walls, the state of the arterioles and the nervous mechanism regulating and controlling the heart beat, and the state of contraction or relaxation of the circular muscular fibres of the arterioles. In some forms of abnormal pulses the channel by means of which such abnormality is brought about is evident; in others we have to rely on conjecture.

Of pathological pulses few, if any, are characteristic of the diseases producing them; in the large majority of cases no specific alterations are produced.

Of alterations in the tension it is in arteries which are either naturally small or are abnormally retracted that one is apt to overlook high tension, and I think that in such cases as these the sphygmograph is especially useful, since it may demonstrate high tension hardly appreciable to the finger.

In some cases of disease the pulse affords us valuable assistance in prognosis; it often indicates the necessity for the exhibition or withdrawal of drugs and affords us commonly a guide to the rational treatment of many diseases associated with circulatory disturbances, and upon our ability to recognise the indications for treatment derived from our examination may the success of our efforts rest.

In these few remarks I have endeavoured to set forth some of the prevailing ideas as to the nature of the arterial pulse both in health and disease, illustrating my remarks by reference to a few of my cases which have shown any special peculiarity. I have, wherever possible, taken sphygmographic tracings from patients whom I have been able to keep under observation for some time and some of them I exhibit this evening.

[Over 60 sphygmographic tracings, illustrating different forms of pulses, were shown during the lecture.]

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A Clinical Lecture
ON
THE "ACUTE ABDOMEN."

Delivered at St. Thomas's Hospital on March 1st, 1906,

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GENTLEMEN,—When the third lecture of this series[1] had been given and the largest part of the subject considered to which the term "acute abdomen" has been applied, it seemed that a group of cases in which disease of the female pelvic organs plays no inconsiderable a part would have to be omitted. This might appear of slight moment, for these conditions are dealt with in the lectures given by my colleagues in the department for diseases of women, but the more urgent complications of these diseases come under care in the surgical wards, usually without the formation of a diagnosis. The "acute abdomen" may arise from a pyosalpinx, the bursting of the sac of an ectopic gestation, the acute necrosis of a fibroid of the uterus, the twisting of the pedicle of an ovarian cyst, or the rupture of the cyst into the general peritoneal cavity. To-day I wish to bring to your notice the account of a patient who was recently admitted for acute abdominal symptoms due to a ruptured pyosalpinx and afterwards remind some of you of other cases formerly under treatment in my wards which show when it is necessary to explore the abdomen after the onset of symptoms due to pelvic mischief which has become acute. There is a certain amount of similarity in the symptoms caused by a ruptured pyosalpinx and those due to a ruptured ectopic gestation, and it is to a consideration of the more acute abdominal complications of these affections that I wish to limit my observations to-day.

The account of the case to which I have already referred is that of a patient who is under treatment in the Beatrice Ward. She is a woman, aged 21 years, who was admitted under the care of Dr. H. W. G. Mackenzie on Feb. 20th, 1906, early in the afternoon. The history of the case was that she had been suddenly seized with abdominal pain during the night of the 19th. This pain had been very severe, had been in the upper part of the abdomen, and she had vomited. She had had a meal of pork during the previous evening. At 4 o'clock in the morning a medical man was sent for who gave her some medicine which she vomited. In her previous history there was an account of indigestion of indefinite character some years ago. There had been a profuse vaginal discharge for some months and the menstrual period was a fortnight overdue. There had been no action of the bowels for two days.

When seen in consultation with Dr. Mackenzie late in the afternoon the patient was lying on her back looking very ill and anæmic and seemed collapsed, drowsy, and apathetic. There was a small circular flush on each cheek. The skin was dry. The respirations were somewhat quickened (24) and the pulse was 110. The temperature was 101·4° F. She complained of pain in the abdomen. This was found to be moving quite well in the upper half but was less mobile than usual in the lower part. On palpation it was quite soft all over but there was much complaint of tenderness, especially in the iliac region and right side up towards the liver. Nothing abnormal was found, the abdominal wall being quite without rigidity or even resistance of muscle to palpation. On percussion the note over the whole abdomen was normal. The liver dulness was normal. At 5 30 abdominal exploration was carried out, an incision was first made in the epigastric region and the stomach and duodenum closely examined. The hand was then passed downwards to the iliac fossa and appendix region and onwards to the pelvic organs. A tumour was felt to the left of the uterus. This was recognised as a pyosalpinx and it was thought that a rupture of this would account for the condition. A second

[1] The previous lectures were published in THE LANCET of Jan. 27th (p. 201) and Feb. 3rd (p. 273) and 17th (p. 429), 1906, respectively.

incision was made in the middle line above the pubes and when the peritoneum was opened free, thin, somewhat viscid, odourless pus was found extending from the pelvis into the flanks. The intestines were packed off with strips of sterilised gauze and the pyosalpinx was removed after the application of three (No. 4) silk ligatures. There was no inflammation of the peritoneal coat of the intestine and no lymph was seen. The area of infection was cleansed with moistened sponges and drainage was provided by a red rubber tube and a strip of gauze. The right ovary was somewhat fixed by adhesions which were freed, but appeared to be healthy, as did also the tube on that side. The upper wound was sutured in layers by Mr. J. H. Bletsoe, the house surgeon, whilst the pelvic condition was being treated. The pyosalpinx formed a tumour of the size of a hen's egg, the walls of the Fallopian tube were much thickened, and there had been a rupture of the tube not far from the ostium abdominale, which itself had been closed by adhesion to the broad ligament. The ovary formed part of the inflammatory mass removed and could only be distinguished on dissection. The plug was removed on the 24th; there was a small amount of discharge which was quite clear. The bowels acted twice and she was doing well. The pulse was 76 and the temperature was normal or subnormal; since the operation pain was quite relieved. (This patient continued to progress satisfactorily and left the hospital on March 13th.)

Pyosalpinx is recognised as the most important condition giving rise to peritonitis having its origin in the pelvis, repeated localised attacks being common. As a source of diffuse spreading peritonitis it is less common, for the thickened tube does not often rupture as it did in this case and allow the purulent contents to spread into the general cavity of the peritoneum. There can be little doubt that the gonococcus is extensively diffused by the rupture of the tube and although Mr. Leonard S. Dudgeon and Mr. P. W. G. Sargent[2] conclude that it possesses a slight pathogenicity when introduced into the peritoneal cavity, it does produce a peritonitis which may be ultimately fatal. We must endeavour to operate before peritonitis sets in; the prognosis is thereby much improved and the duration and severity of the illness are diminished.

None of those who saw the extent to which purulent diffusion had taken place in this patient doubted that diffuse peritonitis must have ensued had operation been delayed. It was the aspect of severe illness with the history that induced Dr. Mackenzie to suggest the desirability of exploration, for local signs of the gravity of the attack were absent. There was no trace of protective rigidity of muscle, whilst the tenderness found was not in any way remarkable. Nothing indicated the probable origin of the symptoms, and although the epigastric region was explored this was in deference to the history of former indigestion, with a recent heavy meal, rather than to any idea that stomach ulceration had really given way, for there were no localising signs. I have stated that the appendages on the right side appeared to be healthy and were therefore not removed; it was probably right to leave them but the result of so doing in a case formerly under my care in which a pyosalpinx had given rise to intestinal obstruction has made me less confident of this than I might otherwise have been. The appendages on the left side appeared normal and were therefore left, but the woman returned with septic peritonitis, the result of a rupture of the tube, in the following year.

A woman, aged 26 years, was admitted under the care of Dr. Mackenzie on Jan. 31st, 1903. She stated that she had been quite well until the 25th when she was taken ill with pains all over her. The attack passed off but came on more severely at 4 A.M. of the 25th and was accompanied by severe pain in the right hip which spread all over her abdomen. On admission the abdomen was distended and did not move well on respiration and the patient looked ill. The abdomen was not tender; it was easy to examine but nothing abnormal was detected on palpation. Examination per rectum showed nothing unusual. The temperature was 100·6° F. and the pulse was 104. On Feb. 3rd she had an attack of abdominal pain with vomiting, there being visible distension of small intestine and peristalsis. The bowels acted well just before the attack. Operation was advised because it was recognised that she had recurring attacks of obstruction due to a mechanical condition, but she refused until Feb. 6th when another rather more severe attack of pain and vomiting induced her to think more seriously of her illness and give her consent.

Incision was made through the right rectus sheath and the muscle was temporarily displaced. On opening the peritoneum a coil of small intestine was found to be distended and to pass down into the pelvis which seemed strangely full. At first it appeared as if the uterus was very large and smooth-walled, but further examination showed the swelling to consist of two parts, a softer one to the right, and when the finger was passed into Douglas's pouch a groove could be felt marking a division between them. The pelvis was packed off with sponges and a large pyosalpinx, which ruptured during the process, was brought outside, separated from its attachments, and removed. The pus was very offensive. The ovary was lost in the mass removed. The left side appeared to be normal. The loop of obstructed gut was found adherent to part of the boundary wall of the pyosalpinx which had been left behind—it was kinked from before backwards; another loop also adhered to this part but was not obstructed. These were freed and some omental adhesions were also separated or divided between ligatures. The pelvis and lower abdomen were carefully washed out with warm saline solution and a tube was left in which extended into Douglas's pouch. On the third day some distension of the stomach was present and this was followed by a more or less general meteorism which very gradually subsided under appropriate treatment, although the patient was for a time seriously ill. The tube was removed on the seventh day after operation. She left the hospital on March 14th, 1903.

On Oct. 20th, 1904, the patient was re-admitted to the same ward with symptoms of diffuse peritonitis. She had enjoyed good health since leaving the hospital until three weeks before her return; she then had a menstrual period, followed a week later by hæmorrhage from the vagina which lasted for three or four days. This was followed by acute pain on the right side of the abdomen which spread to the left side. This pain continued for a week and then for the three days previous to her coming up it increased considerably and was again accompanied on the first and third days by hæmorrhage. She had vomited four times on the day of admission but not before. The abdomen was slightly distended but scarcely moved with respiration. The left rectus was rigid and the lower half of the left side. Great tenderness was complained of all over the abdomen. The flanks were resonant. The pulse was 120 and the temperature was 102° F. A tender swelling could be felt per vaginam in the left fornix. Mr. Percy Sargent, who operated, found that the pelvis contained pus, whilst a sero-purulent fluid invaded the lower abdomen. The Fallopian tube was of the size of a thumb; its walls were much thickened and it was distended with pus. The ovary contained a large cyst in which was a blood clot of the size of a Tangerine orange. The lower abdomen was washed out with saline solution. From the history of disturbed menstrual function it was thought that the blood clot might represent the remains of an ovarian gestation but careful examination in the clinical laboratory did not confirm this idea. The case was essentially one of peritonitis with much purulent effusion without any hæmorrhage. The patient made a good recovery.

Another part of this subject—that of ectopic gestation and its rupture as a cause of the "acute abdomen"—introduces us to additional symptoms: those caused by the increasing accumulation of blood in the peritoneum and the effect of its loss from the circulation on the general state of the patient. The rapidity with which it is poured out and the effect of this are sometimes so great that the patient dies as suddenly as if a deadly poison had been taken. Luckily, most of the victims of this accident are not so quickly overwhelmed and time is given for attempts at a rescue. It is not my intention to enter into a discussion of extra-uterine gestation, its varieties, diagnosis, modes of ending, &c., but simply to introduce the subject as it occurs in actual practice as a surgical emergency, so that you may be able to recognise and successfully to treat it. Of the more severe cases of hæmorrhage I have selected one of rupture of a sac situated in the wall of the uterus in which the symptoms were (as they usually are) very marked and the general state of the patient was a somewhat desperate one. It is a rare position for the sac to occupy, but there is no means of ascertaining this in any case before the abdomen is opened, but the indications for operation are the same as in examples of the much commoner accident—rupture of a tubal gestation.

A married woman, aged 35 years, was admitted under the

[2] The Bacteriology of Peritonitis, p. 33.

care of Dr. Mackenzie on April 23rd, 1903, on account of acute abdominal symptoms. Her history was as follows. She was treated in a London hospital nine years before for "peritonitis" after a confinement. About a month previously she began to suffer from attacks of vomiting which came on especially after food, which she was unable to retain. There was also some indefinite pain in the abdomen. A fortnight previously she attended the out-patient department and was treated for gastritis. The abdominal pain got worse and at 4 o'clock on the day of admission she had a very severe attack which doubled her up and later completely prostrated her. She vomited several times and became very pale, cold, and collapsed. During the afternoon she fainted. She was brought to the hospital 13 hours after the onset of the severe pain. She had had five children, four of whom were still living—one died at the age of six years. The youngest was 18 months old. The last menstrual period was six weeks previously; one should have come on about a week before admission. She had always suffered from leucorrhœa, but during the past few weeks she had been worse than ever. On admission she was blanched, emaciated, and in a state of collapse. The abdomen was held rather rigidly and was generally tender, especially in the lower part. In the left iliac region there was a rounded elastic swelling and there appeared to be fluid in the lower part of the abdomen and to a less extent in the flanks. The pulse was 120 and feeble, the respirations were 26 and sighing, and the temperature was 97·2° F. At 8 P.M. a median incision in the lower abdomen about four inches in length was made and the dark colour of the blood could be seen before the peritoneum was incised. When the abdominal cavity was opened there was an immediate gush of blood mixed with clots and the hand was at once passed to the uterus and tubes. The left one was felt to be enlarged and so was brought to the surface. The enlargement was found, however, to be due to a hydrosalpinx, so the uterus and right tube were drawn up for inspection. The uterus was ruptured at a point on the fundus to the inner side of the place where the right tube joined it. The uterus was longer than normal; the opening was about one and a half inches in length and placed transversely. From it there protruded a fluffy mass of delicate moss-like tissue which filled the opening and bulged over the edges. From this place there was a constant oozing of blood. This was evidently placental tissue. It was removed with a curette and the cavity from which it came was scraped out. The opening was then closed with a continuous Lembert suture. This apparently arrested all bleeding. The left tube was then removed and the pedicle was ligatured with silk. The intestines appeared pale, almost bloodless, and contracted. The peritoneal cavity was carefully cleansed of all clots and free blood by saline irrigation and sponging, after which the abdomen was closed. Four pints of saline infusion were injected into the left median basilic vein during the operation with evident benefit. The patient slowly recovered from the shock of the operation and the large loss of blood. On the third day she complained of abdominal distension and pain in the epigastric region due to acute dilatation of the stomach, for which the stomach-tube was employed with lavage. Some distension of the abdomen continued for about three days but the temperature continued normal and the pulse about 100. Convalescence was slow and she did not leave the hospital until June 29th.

In another case of extra-uterine gestation the diagnosis was rendered difficult because of the history of the illness and the absence of clotting in the blood which had escaped into the peritoneum.

A woman, aged 31 years, was admitted to St. Thomas's Hospital on April 14th, 1904. There was a history of irregular periods and a white discharge on and off between the periods, but general good health until April 8th. She was then seized with a severe internal pain which was so bad that on the following day she was obliged to go to bed; it improved but returned again severely on the 12th. It was most marked on the right side, running up to the right breast and affected the right leg so that it was very painful to move. This pain started with the period which was a fortnight overdue. When the discharge stopped the pain left her but came on again when it returned. She was almost fainting on arrival. On admission she was a pale anæmic woman. The abdomen was slightly distended and tender and it was difficult to examine satisfactorily as she held herself very rigidly. There appeared, however, to be more dulness in the right flank than in the left. On vaginal examination the uterus was found to be normal and freely moveable and a little retroverted; there was no fulness in Douglas's pouch or abnormality of the uterine appendages. The tongue was furred but the bowels were acting. The pulse was 112 and the temperature was 99° F. On the 18th she was again seized with pain in the right iliac region. The vaginal discharge recommenced, being of a red colour. She felt very faint. The pain passed off during the night and on the next morning her temperature was 100·2° and on the following evening 101°. The history, character, and duration of the pain, with the rise of temperature, made it very probable that the appendix was diseased whilst the account of the menstrual irregularities induced Dr. W. W. H. Tate to suggest the possibility of an extra-uterine gestation which was leaking into the peritoneum as a result of some rupture of the sac. On the 29th the operation by temporary displacement of the rectus was performed and a diseased appendix removed after the application of the clamp. As free blood was present in the peritoneum when it was opened and there was none in the pelvis the opinion expressed by Dr. Tate was confirmed and rapid incision in the median line low down gave access to the pelvic organs. The right tube was thickened at one part and from the ostium abdominale hæmorrhage was still proceeding. This was ligatured and removed with the ovary. A tumour of about the size and shape of a pigeon's egg was attached to the left broad ligament. This was excised and proved to be an intra-ligamentous cyst with papillomatous growth inside it. The appendix was catarrhal and was strictured near its base. The right Fallopian tube was enlarged and thickened, the ostium abdominale admitted a little finger, and its mucous membrane was rugose. The uterine end of the tube for a distance of one inch was normal; beyond this it was dilated and contained a large clot which was attached to the upper and posterior part of the interior. No fœtus was found. The right ovary was cystic and contained a recent corpus luteum, besides several old ones. A pedunculated cyst containing blood-stained fluid was attached to the right broad ligament. The incisions in the abdominal wall were closed without drainage after the pelvis had been sponged and flushed with warm saline solution. A week later she complained of pain in the left side of the pelvis and a hæmatocele gradually formed and suppurated, being opened per vaginam about three weeks after the operation. She left hospital quite recovered on June 4th, 1904.

This was, then, a case of tubal abortion, the loss of blood coming from the open mouth of the tube, whilst the unusual character of the pain was explained by the condition of the appendix. There was no sudden seizure as in the patient with intramural gestation, but the result would have been fatal ultimately and I have quoted it as a contrast to the former. In all these cases of operation for hæmorrhage the uterine appendages should be at once examined and if anything abnormal is found brought out of the wound. No attempt to clear away blood clot must be permitted until the source of hæmorrhage is found and its flow arrested. Examine both sides, for there may be a ruptured sac in each tube. As a temporary measure it is advisable to apply clamps to the uterine end of the tube and to the broad ligament beyond.

The sudden onset of an appendix suppuration may simulate the bursting of the sac of an extra-uterine gestation, if there are menstrual irregularity and no marked rise of temperature. A sudden access of symptoms due to bursting of the abscess with collapse simulates a similar condition with renewed hæmorrhage. Some three years ago I was called upon to go into the country at night to see a lady with an acute abdominal illness. The history was that ten days before when the period was a week overdue she had had a severe attack of abdominal pain with faintness and sickness, from which she had gradually rallied. This had been regarded by her medical attendant as probably due to a rupture of an extra-uterine gestation, but as she slowly improved he did not think that operative interference was called for. On the morning before I saw her she had been again suddenly seized with a similar attack of abdominal pain and became collapsed. The condition of collapse continued when I arrived and was extreme. The pulse was imperceptible, the temperature was subnormal, the extremities were cold, and the patient was restless. On the following morning the condition was not improved and, in fact, for four days she was so ill that it was not thought worth while to take her temperature. As a result of careful tending she recovered so that on the seventh day after I had first seen her it was possible to open a large

collection of pus which had been present for the week without much increase in size. There was no blood clot in this and although the appendix could not be found it was regarded as the probable cause for the suppuration. During the closing of the abscess an extension of it to the left of the umbilicus was especially slow in recovering and pus could be expressed from this part when everywhere else the condition appeared satisfactory. At this point adhesions formed between coils of small intestine and I operated for acute intestinal obstruction due to them later in the year. Still later in the same year an attack of appendicitis made it advisable to remove the appendix. The patient has enjoyed good health since.

VACCINE TREATMENT IN SURGERY.[1]

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IT is fitting that evidence on the effects of new methods of treatment should be heard from many sides before such are extolled or condemned. Still better is it that such methods should be tried personally if the principles on which they depend are shown by sensible and reliable workers to satisfy a scientific conscience. About two years ago I heard such evidence with regard to vaccine treatment, founded on Professor A. E. Wright's excellent investigations, and, being satisfied with the authority, have during the past 18 months endeavoured to test such treatment clinically in as fair a way as I could. Hence I have ventured to appear before you to-night to record my experience. I wish to lay facts before you and therefore, where possible, I have had my statements verified by others who have seen the cases. Before putting these facts before you it may be well once again to run over the principles underlying the method of treatment.

By vaccine treatment is meant, roughly, the injection into the patient of quantities of the organisms (dead) which produce the disease. It is found that the resisting power of an individual against the specific organism can be raised with safety by such means. In chronic localised infections or even in some general infections of a chronic character—e.g., Malta fever—sufficient stimulus to successful resistance is wanting. To use such a vaccine during an acute disease would be simply adding fuel to the fire. After such vaccine is injected there is produced a depression in the resisting power—a negative phase—which lasts for a variable time according to the amount or virulence of the vaccine. Following on the negative phase the resistance rises till it is in most cases above what it was before—a positive phase. By repetition of such doses at suitable intervals a cumulative positive phase is usually obtained, so that resistance is much increased. If, however, a second injection is made during the negative phase, this phase is augmented so that harm is done. Hence the necessity to estimate the opsonic power of the patient's serum, which forms a convenient indication of the resisting power, to know when the positive phase is well developed, as then is the time to give another dose. I wish to indicate at this point that if the cycle of events following the injection of a specific vaccine has been estimated a sufficient number of times in different individuals so that one knows the average time required for the positive phase to develop fully, in my opinion it is unnecessary to estimate the opsonic index in most cases. On this idea I have worked for the past seven months and I think it a matter of importance that my results have not suffered therefrom.

Tuberculous disease in its various phases has provided the most frequent test for the efficacy of vaccine treatment. Koch's tuberculin R. differs from the other vaccines used in that the most soluble constituents of the culture are abstracted from it. I have always employed that supplied by Meister Lucius and Brüning, Höchst, Germany. For brevity I shall call it hereafter T.R. It will best serve the purpose to describe the effects of T.R. treatment on the different lesions.

Tuberculous glands.—If these are simply enlarged—not broken down, caseating, or calcified—in every case I have found that the glands disappear after a very few injections of T.R.; in quite early cases no trace of enlargement remains after even only two or three injections. This has been my experience in three cases. One must bear in mind that a surgeon does not usually get such early cases, hence my experience is limited. It is probably impossible to say at first whether caseation has occurred in any given gland, but if the gland, of consistence usual in such cases, has not decreased in size markedly after from six to eight weeks' treatment I have always suspected caseation and at operation this condition has been found. In many of the cases one could compare two or more glands of apparently equal size and consistence. During treatment one or more would so decrease in size as to be impalpable, while the caseating ones would decrease only to a slight extent. If periadenitis, with consequent matting and tenderness, had occurred this usually speedily cleared up. The tenderness disappeared and the glands became more defined and moveable, then smaller in size. If caseation has occurred, operate. Operation need not be vigorous. I have such faith in T.R. that I am going back from my previous attitude in the treatment of tuberculous glands. I used to think that thorough excision, where possible, of all tuberculous foci was the only rational treatment. Now I find that in, e.g., *isolated* caseating glands gentle scooping out of the caseating core is sufficient. If a depressed cicatrix results this may be excised by a very small incision under a local anæsthetic at a later date when the patient is quite sound. If a *mass* of caseating glands exists then excise *en masse* in the usual way. Somewhat similar remarks apply to broken-down fluctuating glands. At first I tested the capabilities of T.R. to cause absorption of the fluid material but in no case did it succeed, although in all the "abscesses" became more circumscribed; if tenderness were present it disappeared and if reddening of the skin were present over the gland this lessened or disappeared also. Had fluid been absorbed the condition left would have been at best similar to that in the caseating gland. Hence I think it is waste of time to delay operation long in such cases. In one case I aspirated the fluid contents of the gland capsule and gave an injection of T.R. Where the aspirating needle had been inserted a sinus formed which healed after a second injection, and after a third there was no trace of enlargement. I think that post-operative healing is without doubt promoted by the giving of one or two injections of T.R. before operation, which should take place about the time when a third injection is due. The patient's resistance is higher and the general health is better, hence healing is quicker and operation need be less extensive. In *isolated* suppurating glands a small incision, varying in size according to the depth of the gland, with gentle curetting, is all that is required. After two days' packing with gauze the incision may be sutured if necessary without bad effect. If caseating glands are studded around the softened one it is better to excise the whole affected mass. If the glands are calcified excision is to my mind the only course. One cannot expect T.R. to cause absorption of cretaceous material and one ought to get rid of a source of danger to the patient. If the glands have broken down and infiltration of the skin, rupture of the abscess, formation of sinus, and infection of the focus by other organisms taken place I have found that simple T.R. treatment does not suffice in many cases. Either thorough "scraping" or excision of the affected parts should be carried out or else the suitable vaccine or vaccines besides T.R. should be given. One or two injections of streptococcus or staphylococcus or of both should be given. With T.R. alone such cases often improve only to a limited extent and then show no further improvement in spite of variation in the dose or time interval of injection. Of course, the usual precautions which accompany ordinary surgical treatment should be carried out—e.g., removal of bad teeth, enlarged tonsils or adenoids, or other source of infection. Fixation of the part will promote healing of this as of other tuberculous affections. To my mind foul discharging sinuses and hideous scarred necks resulting from advanced tuberculous disease should become unknown. The disease should never be allowed to reach that stage.

Tuberculous joint affections.—Here, again, the prospect is a hopeful one. But ultimate complete success in restoring full healthy function will be obtained only by making a correct diagnosis in early stages and adding T.R. injections to those well proved and approved lines of treatment usually

[1] A paper read before the Edinburgh Medico-Chirurgical Society on March 7th, 1906.

carried out. All the same, one of my joint cases, tuberculous arthritis of the knee, has been completely cured by the employment of T.R. alone. Since the injections were begun the patient has had no splinting or any special local treatment and no other internal remedy has been given. At the commencement of the T.R. treatment he had a sinus, very recently formed, over the internal condyle which was much enlarged. There were thickening of the synovial membrane, effusion into the joint cavity, pain, and much limitation of movement. The joint is now practically normal to appearance and movement has increased by about 45°. The patient has no pain and can run about freely with only the slightest limp. All the same, I recommend most strongly that all treatment which will favourably influence the course of the disease should be employed. One cannot afford conscientiously to run risks with such patients. To my mind, however, a new element has arisen in the treatment. Previously, when a patient was (to even a slight extent) the subject of night-starting, shrieked with pain at any attempt made to move the joint, and when effusion into the joint and thickening of the synovial membrane were present, one gave, to say the least of it, a very guarded prognosis as to the future of that joint. It *might* disintegrate completely and the most favourable outcome was that the disease would subside, but a stiff joint, in more or less good position, was practically certain. Operation cures the disease to be sure in most cases, but in too many it leaves much to be desired with regard to function. In the lower extremity it is practically essential to procure firm ankylosis. I feel certain that the outlook will be far more cheerful when the early use of T.R. is made. I have mentioned one case of arthritis of the knee. I have under treatment a case of tuberculous synovitis of the knee following displacement of the inner semilunar cartilage. Microscopic examination confirmed the diagnosis of tuberculous disease. The knee measured two inches more in circumference than the sound one. Movement was limited to about 30°. In such a case in the event of healing under ordinary treatment one would have expected dense adhesions, but the patient is obtaining freer movement as the joint is rapidly regaining its normal size. The condition was becoming steadily worse before T.R. was given. A third case of hip-joint disease showed the symptoms which I have already indicated (night-starting, pain on handling, and especially on attempted passive movement, &c.). Here I have the advantage of having had my observations confirmed by one of yourselves, who gave a guarded prognosis except that he was quite certain that even the most favourable outcome would be a stiff joint with shortening. With this opinion I was practically agreed. I have no doubt that he will be pleased to hear that the little patient can wriggle about in bed like an eel, can sit almost bolt upright without any sign of discomfort whatever, and allows one to handle the joint without demur. I venture, therefore, to think that such joints should not be absolutely immobilised for the long period which has hitherto been customary. By so fostering adhesions we may prevent what would otherwise be a perfect functional result. If not contra-indicated by the general progress of the case and the tendencies of the patient I suggest that about from two to four weeks after all tenderness on palpation of the joint has disappeared gentle passive movements be attempted every few days and that the patient be allowed well-governed freedom to move the joint if inclined. If any sign of deterioration occurs renew the stringent precautions for another month. Thus I believe that the course of treatment will be shortened by about half of what has hitherto obtained. It is interesting that in a case of resection of the shoulder for tuberculous disease 18 months previously, where the cervical glands in the posterior triangle had recently become enlarged to the size of a hazel nut, the patient stated spontaneously, after a couple of injections of T.R., that movement at the shoulder had become much freer. The glands (one suppurating, aspirated) became impalpable after the third injection. She had a very bad tuberculous family history.

There is often difficulty in determining whether a deep joint, such as the hip, is really tuberculous. One can come to a decision by giving a big dose of T.R. in order to provoke the local reaction which will occur if the focus be tuberculous. This is very undesirable because one may thus lower the resistance (or, in the language of the opsonist, produce such a decided negative phase) so that the process, instead of being a very chronic one, may light up and prove very difficult to master. It is much better, although not quite so trustworthy, where it is possible to examine the blood only, to ascertain the opsonic index to tubercle bacilli. According to Wright and many others this is of much clinical value. If it be low or unduly high one should at least be very suspicious of tubercle.

A young woman consulted me about her wrist which was giving her much pain and preventing especially her piano playing. There was slight thickening of the proximal end of the fourth right metacarpal bone. This disappeared after fixation of the wrist in plaster-of-Paris for some weeks, but the pain persisted and became worse as time went on and there was a suspicion of recurrence of the thickening of the bone. X rays gave no help. The opsonic index to tubercle bacilli was 0·75, so I began T.R. injections with the result that the trouble rapidly disappeared.

A very different picture from the point of view of rapid results, is presented usually by cases where abscess formation with subsequent development of sinuses and compound infection has occurred. In none have I obtained satisfactory results with T.R. alone unless after operation, and in the majority, although great improvement has occurred, yet it has been slow and subject to occasional retrogression. Here, however, I have not many cases to judge from. One case already recorded was a boy from the poorhouse, with elbow, wrist, metacarpal, and ankle much disintegrated—to say nothing of far advanced disease in his cervical glands. The rapidity with which his lesions healed was very striking. The case of a little girl, in very poor general condition, who came to hospital with a profusely discharging sinus in front of her left hip-joint, is probably the next best in result. The head of the femur was far gone and there was a rather large cavity, filled with pus and lined with very unhealthy granulations, in front of the joint. The bone and cavity were thoroughly scraped. She healed slowly with T.R. but made rapid strides when staphylococcus vaccine was given as well. There remains now only a very small superficial ulcer. In a man, aged 45 years, a very advanced case of hip-joint disease, the result has been unsatisfactory. He was, however, in bad general condition, suffered from incipient waxy disease which caused troublesome diarrhœa, and he persisted in taking unsuitable food. To give him a chance of life I undertook treatment. The head and neck of the femur were rotten and there was besides necrosis of the innominate bone. Numerous foul cavities radiated in various directions from the diseased bone. Several operations were performed. He would not listen to proposals of amputation. After T.R. was given he improved only to a limited extent and then lost ground in spite of variation in dose and time intervals. His opsonic index averaged from 0·75 to 0·8. He improved much more when mixed vaccines of staphylococcus and streptococcus (which organisms were found in the discharge) were used. In fact, only then did any satisfactory healing occur. A large granulating area which had formed in the line of an extensive posterior incision healed with the exception of four sinuses. This area had remained unaltered for weeks. The patient has tired of hospital and gone home and one cannot say that he is better.

I think you will agree after hearing details of these cases at varying stages that it is now even more desirable to prevent, as I believe one can prevent, the very miserable local and general condition of advanced and progressive cases and the disablement and too frequent deformity of cases where cure has been effected. This can be done only by accurate diagnosis and by prompt and rigorous treatment in the early stages. I have no doubt that the very much brighter outlook in these cases will soon be appreciated by those who add T.R. injections to their other treatment.

Tuberculous peritonitis.—In this class I have only one case to record. A hospital nurse, with a very bad family history, developed what turned out to be severe tuberculous disease of the ovaries and tubes, with accompanying peritonitis in the lower part of the abdomen. She had previously a sharp attack of pleurisy with effusion. There were complications, non-tuberculous, which hastened operation. Her right tube and ovary were removed and owing to the conditions it was necessary to leave a tampon in the pelvis, the ends being brought out at the lower part of the abdominal wound. The patient was very ill for many months after the operation and was making a very tardy convalescence, if convalescence it could be called, until injections of T.R. were begun. There was then a most decided change in a week or two. She gained appetite, flesh, and strength. The abdominal wound, which had become a large scooped-out, unhealthy, granulating area, healed until only a small sinus was left. This led into a cavity in the pelvis, which

was then drained per vaginam. There is still a very tiny suprapubic sinus. She is now in comparatively robust health and capable of taking a fair amount of walking exercise. Six months ago everyone in connexion with the case thought that the prognosis was well-nigh hopeless.

Psoas abscess.—Either aspiration or incision is necessary at some part of the treatment of these cases. Personally, I prefer incision so as to be able thoroughly to evacuate caseous material and pieces of diseased bone, either movable or fixed. I believe that energetic scraping of the abscess wall will be obviated by the use of T.R. I have, however, not had an uncomplicated case of tuberculous psoas abscess to deal with since I have become convinced of the efficacy of T.R. I have to report two cases where multiple infection occurred. One was an anæmic, sallow-looking youth who informed us at the hospital that during the previous week his trousers had rubbed through the skin over a very large swelling in the left groin and upper part of the thigh. A great quantity of pus had escaped. There was a hole in the skin of about one inch in diameter through which masses of caseous material and thin flaky pus were still escaping. The unhealthy edges of the hole were excised by an elliptical incision and the cavity below Poupart's ligament was scraped out. Through an incision above the iliac crest the upper part of the abscess was opened. Several pieces of loose bone were removed and the cavity was scraped in a perfunctory way compared with my usual practice. Both wounds were sutured. All the stitches gave way and for a couple of weeks free discharge occurred. Ten days after his operation T.R. injections were begun. Later he got mixed staphylococcus and streptococcus besides. The granulating wounds kept very healthy and healed rapidly, discharge from the depth soon ceasing. His general appearance and health are vastly improved. The other, a weakly emaciated girl aged 17 years, came to hospital with a sinus in the groin, from which fairly profuse discharge had escaped for several weeks. Otherwise the case was similar to the one already given. T.R. injections had a beneficial effect but far greater improvement resulted when streptococcus and staphylococcus vaccines were used in addition. The wounds have practically healed. Infected psoas abscess is a condition of evil repute, but these cases show that one need not be so hopeless nowadays about the prognosis. Judging from my own limited experience I should have given a bad prognosis in both cases with ordinary treatment.

Tuberculous disease of upper air passages.—A case of rhinitis, with typical tuberculous ulceration of mucous membrane and caries of turbinates and bones of the bridge of the nose, with secondary suppurative infection of the absorbent glands, had been treated over several years by all sorts of local manœuvres with only temporary benefit. The patient came to me again about the middle of January saying that she thought that another operation must be necessary and was afraid that the disease was going to break through the skin at the bridge of the nose. One injection of T.R., supposed to be $\frac{1}{10}$th of a milligramme, produced considerable reaction, lasting for a week. A second smaller dose with staphylococcus added was given after 18 days and repeated at intervals of 14 days. The patient is now almost cured.

Tuberculous teno synovitis.—A young patient with a bad family history was operated on by me for tuberculous synovitis of the common flexor sheath of her right hand. This was followed by perfect healing, but 18 months later the flexor sheath at the base of the middle finger became similarly affected. One injection produced markedly beneficial effect, in spite of the fact that the movements of the finger were controlled only voluntarily—i.e., no splinting was applied. She was cured after three injections.

Genito-urinary tuberculosis.—As I have taken up too much time already, I do not wish to say much about this except that I have not obtained the constant and progressive good effect from T.R. alone recorded by other observers. In fact, had I begun by trying T.R. on this class I should not have been here to-night, as I should have had so little to record. I am convinced that it is advantageous at an early stage to obtain information as to the nature of the complicating organisms, for in such cases complication takes place early. Then make and use the suitable vaccine. In uncomplicated cases or where purely tuberculous deposits are left behind—e.g., in the prostate or the vesical end of the vas deferens after removal of the testicle—T.R. causes more rapid absorption of such deposits than usual.

The use of other vaccines.—Of the effects of other vaccines on their specific diseases I do not intend to say much. I have not so much experience of their use and the results have not been so uniformly striking in cases where the infection was uncomplicated.

The usefulness of other vaccines in conjunction with T.R. in mixed infection of tuberculous foci has been already and probably sufficiently indicated. The same degree of usefulness may evolve in other conditions. It is well known, e.g., that once a gumma has "broken" through the overlying skin or mucous membrane it is frequently infinitely more difficult to bring about cure with ordinary medication than it would have been before ulceration occurred. It is a case of mixed infection again. An example of the good effect of staphylococcus and streptococcus vaccines occurred lately. The patient's back was the seat of several ulcerated syphilitic lesions. Two large areas were covered with rupioid crusts and over the erector spinæ opposite the twelfth rib on the right side was a scooped-out ulcer, dirty, sloughy, discharging freely, and smelling badly. It measured two and a half inches across and one inch in depth. All sorts of treatment had been given to these parts by numerous skin specialists in different parts of the country but during the past year they had become rather worse than better. Injections of staphylococcus and streptococcus produced an immediate improvement. The affected areas became cleaner, the granulations more vascular and firmer, and the surrounding parts much healthier and more natural looking. I do not think that healing will occur without operation. Whereas I had scruples about operating from fear of making matters worse I now have none.

Staphylococcus and streptococcus vaccines are of use in another class of diseases, ulcerated cancers. Prompted by Mr. G. L. Cheatle's suggestion I have given these vaccines in three cases of extensive operation in the mouth with the idea of preventing septic pneumonia. In one patient, aged 65 years, the extent of the epithelioma required removal of the whole of the horizontal ramus of the lower jaw on one side and of the adjacent part of the floor of the mouth and cheek besides the glands of the anterior triangle. The patient was a weakly, anæmic individual, of a type prone to succumb to pneumonia. In the other cases, one, a case of sarcoma in a patient aged 45 years, and another, a case of epithelioma in a patient aged 69 years, involved, curiously enough, in both patients the removal of the back part of the upper part of the jaw (behind the first molar tooth), the tonsil and adjacent parts of the pharyngeal wall, palate, and tongue, and all the tissues between these and the ascending ramus of the upper jaw. In these cases I consider that septic pneumonia was peculiarly liable to occur. In none of the cases was there ever the faintest suspicion of lung trouble. It would be a great matter if such treatment obviated the necessity of tracheotomy. The injections were given from five to seven days before the operation. The first patient had previously two other injections at weekly intervals. What impressed me was the shrinking and cleaning of the affected areas, especially in the first case. This patient expressed the opinion that operation would be unnecessary if the improvement continued. His mouth was foul from the presence of many carious teeth. The sockets left after extraction previously to operation healed more cleanly and quickly than usual. In this cleansing effect, then, we have another reason for the use of these vaccines before operation in such cases. There are less sloughing and less discharge during the after-treatment and therefore less trouble in keeping the parts sweet and, most important, less danger to the patient. Apparently this beneficial effect begins to diminish after from 10 to 14 days. Injections repeated after the operation will prevent this probably, as evidenced by one of the cases. I intend to widen the sphere of usefulness and make similar injections before such operations as for cleft palate, so as to increase the probability of primary union. Other possibilities crowd into one's mind—e.g., for the prevention of peritonitis as the result of operation for closure of fæcal fistula (here bacillus coli might be given as well), or previously to operations on diabetics or "albuminurics" who are so prone to the onslaughts of septic organisms. In cases of severe accident wounds, although by early thorough mechanical cleansing and clipping away of lacerated structures one procures usually perfect healing, it may be possible to improve statistics further by giving before the operation vaccines of the organisms of suppuration. Where such thorough cleansing has been done I find that when suppuration does occur it occurs at about the end

of from seven to ten days and is usually mild in character, so that the positive phase following the injection of the necessary vaccines will have developed several days earlier than this and may prevent such suppuration. The preliminary negative phase might, however, foster the earlier development of the infecting organisms, so before passing any opinion one requires to compare many cases observed by trustworthy men.

In the pure streptococcus or staphylococcus infections one does not require to, one had better not, use vaccines in the early stages. But for the bursting of an abscess or the use of the knife all such cases should, theoretically, according to this resistance theory of Wright, prove fatal, for is there not a continual supply of poison absorbed into the system and should there not, therefore, be a continuous increase in the negative phase? Why should erysipelas become arrested? Why should there be a crisis in pneumonia according to these ideas? I shall not attempt to answer but merely say that theories do not fit all phenomena where living tissues are concerned. Even though such abscesses are not relieved they sometimes dry up and this is more likely to happen the nearer they are to the surface of the body. Certainly the small circumscribed furuncular abscess frequently does. Evidently there is a victory for the tissues and fluids concerned. But yet there is not sufficient resistance provoked, for how often do we see crop after crop of such boils coming out, frequently over a period of months. Here there is a clear indication for the raising of resistance by injection into the general circulation of the specific vaccine, and it has been done repeatedly with success. In *chronic* septicæmia or pyæmia, again, cure will probably be obtained by giving a fillip to the resisting powers by the injection of the suitable vaccine.

One can only indicate probable usefulness for gonococcus vaccine in *chronic* gonorrhœal infections, such as gleet, prostatitis, epididymitis, endometritis, salpingitis, arthritis, and so on.

In a case of pyelitis, where internal remedies, prolonged drainage with daily flushing of the renal pelvis, and plastic operation on the deformed pelvis had failed, I tried vaccine treatment. The vaccine was made by Professor A. E. Wright from the culture obtained from the patient's urine. It was a pure one of bacillus coli. The case was evidently proceeding rapidly to cure, when an attack of influenza occurred and no efforts would induce the number of bacteria in his urine to decrease below from 1,000,000 to 2,000,000 per cubic centimetre. All the same, the average number was at one time about 30,000,000. The progress of this case has been checked by the patient's opsonic index to bacilli coli.

Before proceeding further I should like to say that I would fain avoid technical details in connexion with our subject, my own inclinations being strengthened by a hint from your secretary, but one cannot altogether disregard them. I do not wish to refer to the opsonic index problem further than to discuss the question whether such an estimation is necessary for carrying the great majority of cases to a successful issue. I assert that it is not. If my assertion is wrong it means that many cases deserving of the treatment will have to do without it on account of the expense and labour involved in the calculations. An ordinary practitioner cannot possibly afford the time necessary. Even if he could, unless he has passed through very special training his observations will be of no value. The average patient cannot afford to pay for the services of the skilled bacteriologist as well as those of his own medical man. One must bear in mind that a great bulk of patients of the non-pauperisable working and middle classes are outside the benefits of what may obtain in hospitals. As the usefulness of the treatment is appreciated and its application extends even hospital authorities may grudge to pay for the amount of skilled labour involved if clinical symptoms are not sufficient to guide one during the course of treatment. I assert that accurate clinical observation is quite sufficient, but would repeat that thorough experimental investigation of the effects of any specific vaccine must precede its use clinically in this way in order more easily to arrive at the proper approximate doses and time intervals of giving these. The opsonic index is necessary for the investigator, but not for the clinician in the majority of cases. My cases prove the point very satisfactorily and I think that nothing more need be said by me. One cannot do without the services of the bacteriologist, however. He must find out for us what the organism is which is causing the disease and prepare the corresponding vaccine.

It will be best to consider now what are the proper dosage and time intervals at which the doses should be given. As stated, these must first be ascertained approximately by the bacteriologist. I do not think that one can be dogmatic about dosage. From my experience in this line I should say that one of the important things is *to get rid of the inclination to increase doses* so as to produce better results. Not very long ago Professor Wright was kind enough to send me a list of the doses of a few of the vaccines which he had been giving. They were as follows: Staphylococcus, from 500,000,000 to 1,000,000,000; streptococcus, from 100,000,000 to 250,000,000; gonococcus, from 50,000,000 to 250,000,000; bacillus coli, from 100,000,000 to 1,000 000,000; and tuberculin R., from $\frac{1}{1000}$th to $\frac{1}{100}$th of a milligramme. I should say that one should give even less than these. For example, I have been getting very marked results from the use of about one-sixth of this amount of staphylococcus vaccine at a time. As Professor Wright says, it seems well also to prolong the interval and to lessen the dose of vaccine in the later stages of treatment.

The dose of T.R. which I have been giving usually is $\frac{1}{500}$th of a milligramme for either adults or children beyond the age of from three to five years. Children seem to be able to stand relatively more than adults, although I cannot say that the good results have been more striking or rapid. The doses have been repeated at intervals of usually ten days, lengthened to about 14 days if so indicated by the clinical symptoms. After two or three months repeat only every three or four weeks. After the performance of any extensive operation or one in which vigorous scraping has been done, it is better to omit the dose until from 10 to 14 days have elapsed, because a negative phase is produced by such operations. For the same reason I do not give a dose for a few days after the patient has arrived in hospital, especially if there is much discomfort about the affected part or rise of temperature. It would appear to most to be quite a simple matter to dilute the solution of tuberculin to easily manipulable strength, but this is not an easy thing to do accurately and aseptically. I prefer to get it done by the trained bacteriologist. I have reason to say that accuracy in this matter is important. As I have indicated, doses of from 50,000,000 to 150,000,000 of staphylococci seem to me to be quite sufficient. I have given them at intervals of from five to eight days before operation and at similar intervals in ordinary curative treatment. From 50,000,000 to 100,000,000 of streptococci have been given at similar intervals in similar circumstances. Bacillus coli gives, I should say, best results in doses of from about 50,000,000 to 150,000,000. In my experience doses above that are likely to produce severe general reaction. In giving mixed vaccines it is apparently immaterial, so far as T.R., staphylococcus, and streptococcus are concerned, whether they are given together or alone. Apparently each works quite independently of the other. This fact has also been proved experimentally. The nearer to the surface of the body these vaccines are injected the more likely are they to produce an intense reaction at the point of injection. This refers especially to staphylococcus and streptococcus vaccines. Therefore it is best to inject into the belly of a fleshy muscle and to make the patient move the part so as to dissipate the dose. It is well that the patient should not indulge in exercise for some hours after the injection.

Now comes the question, what are the clinical symptoms by which one can be guided reliably? One should give a dose which will just fall short of producing a definite local or general reaction. If larger doses are given too great a drop in resistance may be caused and harm result by providing freer scope for development of organisms previously more or less inert and under control of the patient's defensive system. Witness the results in the days when tuberculin was first used! If too large a dose be given the patient may have discomfort or actual pain, swelling, and other increased inflammatory signs in the part affected. General signs which I have noted are headache, loss of appetite, malaise, nausea, even vomiting, rise of temperature, aching bones or joints, and in the cases of streptococcus and bacillus coli severe rigors have occurred.

If the vaccine be doing good the great majority of my patients have experienced improvement in the part affected and have shown and expressed marked improvement in general health, their appetite and sleep have improved, they became brighter, and they put on flesh. For a day or two following the earlier injections there may be such slight signs as increase in discharge or discomfort to the extent of

more active consciousness of the part affected, but as the positive phase develops the discharge lessens, the swelling decreases, the pain and tenderness tend to disappear, and so on.

It may be unwise to appear so hopeful about the future of cases which are amenable to vaccine treatment. With reference to tuberculous cases, at first, of course, I had to test the treatment for myself and this had to be done in the less important cases. I began the treatment in a somewhat sceptical frame of mind. When I was convinced of its utility I tried it in all my tuberculous cases and then had to go a step further and add mixed vaccines to T.R. in infected cases. All this took time, hence the number of cases recorded which are still under treatment but which I am convinced are going on to complete cure. The general and local conditions in these are very much healthier than in similar cases after the same length of treatment without T.R. or other vaccines. I have recorded the effects of the treatment on patients in different stages of disease as faithfully as I could without undue length. In a large number of the cases (out-patients and private patients) the surrounding conditions were the same before and after T.R. treatment was begun and no other internal remedies were given. My experience leads me to say that the earlier the stage of tuberculous disease the more certain the cure. Perhaps even a majority of such cases will heal by other means but I think there will be a greater certainty of cure and less likelihood of impaired function if T.R. be used in the proper way. I draw attention particularly to the value of T.R. in preparation for operation.

If I may be permitted to trespass on medical ground I should like to say that I think pulmonary tuberculosis is comparable, so far as treatment is concerned, with tuberculous disease elsewhere. Of course, we know how favourably early cases of phthisis are influenced by modern methods of treatment. By the addition of T.R. to these I think that cure will be much more certain. If the case is so advanced that purulent expectoration is present then organisms other than the tubercle bacillus are at work and they require the use of mixed vaccines just as surgical cases do. I believe that, as in surgery, only occasionally will such cases be cured by T.R. alone. Cases with high temperature, profuse expectoration, great wasting, excavation, and so on are similar to the advanced case of hip-joint disease which I mentioned and whose life has, to my mind, been merely prolonged. These phthisical cases, unlike the majority of surgical ones, cannot be investigated by sight and touch, nor can we estimate with the same degree of certainty the amount of local reaction following injection. Hence it would appear more desirable to be guided in such cases by the opsonic index.

I think it reasonable that T.R. should be given as a preventive of recurrence. I mean in future to give, say, three injections during one month out of every six until the patient is considered safe.

You will have appreciated the fact that want of progressive improvement during T.R. treatment is, in my experience, almost an indication for operation, apart from other considerations. In the case of tuberculous glands it is so and it would appear to be the same in joint disease, for where purulent flaky effusion, caseation, or necrosis of bone is present T.R. causes only partial improvement.

As Wright and Bulloch have pointed out, the good effect of Bier's passive congestion on localised infections may be explained in that it forces into the focus fluid richer in resisting substances than those present in the infected area. The same thing happens when an abscess is opened.

The whole subject of vaccine treatment is of very peculiar and not unequivocal interest to the active surgeon, because its success means the removal of much work out of his hands into the hands of the general practitioner, or rather that the means of treatment at the disposal of the general practitioner will be such that there will be no necessity to hand so many cases over to the care of the surgeon.

I must now apologise for having taken up so much of your time. There are many other thoughts which have occurred to one during the study of the cases I have put before you but these require to be tested before being presented in public.

Aberdeen.

THE FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.—We are informed that at the International Congress of Medicine which is now being held at Lisbon a reading room for the use of those attending the Congress has been provided in the School of Medicine, Lisbon. Visitors to the Congress will there be able to find medical journals and to obtain intelligence about current events.

THE TREATMENT OF MALIGNANT ENDOCARDITIS BY THE RECTAL ADMINISTRATION OF ANTISTREPTOCOCCIC SERUM; RECOVERY IN TWO CASES.

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THE pathology of virulent invasions of the human body by pathogenic organisms is on the eve of being understood and the brilliant work of Wright, Ehrlich, and others will, I hope, soon lead to some exact scientific line of attack in the treatment of these fatal diseases. In THE LANCET of Sept. 18th, 1897, p. 707, there is a most interesting and encouraging account of the treatment of a case of malignant endocarditis by the late Dr. J. W. Washbourn whose loss to scientific medicine we all so deeply deplore, and there are also cases in THE LANCET by Dr. Harrington Sainsbury[1] and Dr. Margaret Pearse.[2]

With the exception of the above cases and a few others the treatment has in recent years been discontinued and I venture to record three well-marked cases of malignant endocarditis in which the antistreptococcic serum was of immense benefit when other methods of treatment failed. During the last eight years I have used this serum in more than 200 cases of septic infection of various kinds, such as puerperal septicæmia, pyæmia, erysipelas, and septicæmia complicating other diseases, such as typhoid fever, pneumonia, and endocarditis, and I have come to the conclusion that in purely streptococcal infections the serum is of great value and has saved many lives; in a great many other cases it has been of little value. I have found, however, that the usual method of injecting the serum under the skin of the abdomen is open to objection. It is in many instances very painful, especially in stout patients; in fact, the patients dread the injection. This method also is more liable to be followed by skin rashes, such as erythema, urticaria, and joint affections. In several of my hospital patients I had to discontinue the injections under the skin owing to the objection of the patient.

With a view to diminish the discomfort and liability to skin rashes I adopted a method of administering the serum by the rectum and the results have been so satisfactory in over 25 cases that I will not think of again injecting the serum under the skin. The method adopted is as follows. The bowels are freely cleared by aperients and the rectum is gently washed out with a little warm saline solution. The formula for injection is as follows: antistreptococcic serum, 20 cubic centimetres; normal saline solution, 100° F., 40 cubic centimetres; to be gently injected into the rectum morning and evening or as required. It is found that there is no pain or discomfort; the serum is rapidly absorbed and seems to exert the same bactericidal influence as when given under the skin; skin rashes are rarely seen and the thirst and dry tongue are relieved. When given in such a small amount there is no difficulty on the part of the patient in retaining it and it is rapidly absorbed. In fact, I am satisfied beyond any doubt that equally good results are obtained by absorption of the serum per rectum as by subcutaneous injection and with, so far, no skin or joint complications.

Authorities differ as to the unity of streptococci obtained from different sources. Marmorek holds that all streptococci are the same, whilst Piorkowski and other continental observers affirm that they are different and that one streptococcus may not protect against another. This is probably the true view and Aronson and others have used a serum for the purposes of immunisation which was isolated from different sources. This serum is what is known as a polyvalent serum and the one prepared under the direction of Dr. Dowson in the laboratories of Messrs. Burroughs, Wellcome, and Co. is what I have always used with, I am glad to say, excellent results. Since using a polyvalent serum my results in general hospital work have been much more definite and

[1] THE LANCET, Oct. 17th, 1896, p. 1079.
[2] THE LANCET, July 10th, 1897, p. 92.

successful, which would easily be explained by the fact that streptococci are from various sources of different strains.

The following is a very brief account of the three cases of malignant endocarditis in which this method was adopted.

CASE 1.—The patient, a young woman, aged 26 years, was admitted into Mill-road Infirmary three days after delivery of a stillborn child. The labour was a difficult one and instruments were necessary to deliver the child. On admission she was in a state of acute puerperal septicæmia. The temperature was 103° F. and the pulse was 140 and very feeble. She was partially delirious. The genitalia and uterus were carefully examined and a swab was taken from the interior of the uterus which showed streptococcus on agar tubes. She was immediately given 20 cubic centimetres of serum as above indicated in the rectum night and morning. On admission the heart sounds were pure but on the third day after admission a soft blowing systolic murmur was heard over the apex and confined to the mitral area. On the next day she was seized with violent rigors, sweatings, and great restlessness, her temperature being 106° and the pulse 140. After each injection of serum there was a drop in the temperature of about two degrees and she expressed herself as feeling easier. The rigors ceased and the sweating was less. The murmur, however, became louder and harsher and in spite of all treatment she died six days after admission. In all she had 200 cubic centimetres of serum.

At the necropsy the uterus was found to be enlarged and flabby and the endometrium was acutely inflamed and covered with a greyish slough. There was no retention of placenta or any débris. The heart was enlarged and weighed 13 ounces. The mitral valve was in a state of acute infective endocarditis and streptococci were readily stained from it. There was no other lesion to be found and the case was evidently a very acute infective septicæmia which would have required an enormous amount of serum to combat successfully.

CASE 2.—This was an example of the cardiac or malarial type in which the heart has been damaged by previous disease. The patient was a woman, aged 26 years, who was admitted to hospital in a serious condition. She had suffered from heart trouble for ten years, the result of rheumatic fever, but had been able to work up to a week before admission. She was at that time seized with great pain in the cardiac region, shivering fits, and general malaise. On admission her temperature was 104° F., the pulse being 120, small, and irregular. On examination the heart was found to be much enlarged, with loud mitral presystolic and systolic murmurs. The murmurs were particularly harsh and rasping, with great cardiac irregularity. She had a large tender spleen, numerous petechiæ over the arms and chest, profuse sweating, and violent rigors at intervals, together making a typical clinical picture of infective endocarditis. Her case seemed desperate. She was given 20 cubic centimetres of serum night and morning and after the second dose she felt relief. Her temperature dropped at once, the pulse became slower and steadier, and she felt easier. After each injection she felt better, the rigors rapidly disappeared, the sweating became less, and she was able to converse and to explain her symptoms. The injections were continued for 20 days; in all a total amount of 560 cubic centimetres of serum was given and her condition was immensely different. The temperature became normal, the pulse 100 and regular, and the murmurs much softer, and this condition continued for five weeks, during which time she was comparatively comfortable and free from dyspnœa and pain. The damaged heart, however, remained and she died somewhat suddenly from embolism six weeks after the temperature had become and remained normal. Unfortunately no necropsy was obtained.

CASE 3.—This patient, a woman, aged 23 years, was another instance of the cardiac or malarial type where the heart had been previously seriously damaged by an attack of rheumatic fever. On admission she was suffering from a typical attack of acute infective endocarditis with a temperature of 103° F. and persistent and recurring rigors. The aortic valve was seriously damaged, with all the symptoms of stenosis and regurgitation. The murmurs were harsh and loud and there was considerable dyspnœa, the patient having to be propped up in bed. She was given 20 cubic centimetres of serum morning and evening and almost immediately she got relief. The rigors ceased entirely after three injections, the sweating was less, and she felt less headache and oppression. The temperature gradually dropped and reached the normal in ten days. Altogether 580 cubic centimetres of serum were used, with no pain or discomfort and no sign of erythema or urticaria. Her condition rapidly improved until in three weeks she was entirely free from symptoms or distress. She was discharged to the convalescent home in a good condition.

Remarks.—From a prolonged use of polyvalent antistreptococcic serum per rectum I am satisfied of its greater efficacy and personal comfort than by injecting it under the skin. This antistreptococcic serum, however, is only an antimicrobic serum and has no antitoxic action. What the result of injecting antitoxic sera by the rectum would be I do not know as I have had no experience. There can be no possible doubt, however, as to the great value of antistreptococcic serum in pure streptococcal infections and the preparation of a polyvalent serum is a great step in the treatment of these acute and often fatal diseases.

Liverpool.

THE TRAINING OF NERVE CENTRES IN CHILDREN.[1]

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IN presenting to the society my views on the subject which forms the title of this paper I make no claim to originality. I am simply rehabilitating an old friend in new vestments and attempting to express in words certain thoughts and ideas which in some form or other must have occurred to all of us. Practical psychiatry has recently taught us many a useful lesson concerning the development and training of the defective mind; what I am going to say this evening is concerned with the application of the same fundamental principles to the training and education of those lower nerve centres which control the humbler organic functions and which, not only in mentally defective children, but also in children of superior intelligence, often suffer from certain initial disabilities.

Though all of us are perfectly well aware that every organic event that takes place in our bodies is the expression of a reaction to outside agencies or the response to stimulation by the environment, in the practical domain of medicine and in the treatment of symptoms we seldom pause to consider that all these reflex actions represent chemical and physical changes set up in the central nervous system by forces reaching it from outside and that the objective manifestations of these changes are only secondary events occurring in the muscles and in other organs. In other words, we rivet our attention on the instrument which displays the function and not on the hand that guides the machine. How many of us, for instance, when we have to treat a case of dyspepsia think of possible disturbances in the nervous centres which control the functions of digestion? Do we not rather think of the pathological condition of the gastric mucous membrane or of disabilities of the motor functions of the stomach? The irrational and unscientific classification of diseases into functional and organic varieties has doubtless predisposed to this narrow conception of morbid processes. Every disease must primarily be functional in character. Whether organs do their business well or badly depends almost entirely on the central administration of the nerve cell; for the special activities of organs, as well as their nutritional and vegetative functions, are inseparably bound up with impulses which emanate from this central authority.

In the same way that in the treatment of disease our natural inclination is to consider the organ rather than the nerve cell that directs its activities, so in the physical education or training of the ordinary bodily functions we incline to direct our energies to the instruction and improvement of the organ with which we are concerned and momentarily forget that the only portion of the entire reflex arc which has a memory or is capable of instruction is the nerve cell which

[1] A paper read before the Chelsea Clinical Society on Feb. 20th, 1906.

ceives the stimulus we apply and which transmits orderly or incoherent messages according to the manner of its own organisation.

To take a very simple instance in illustration of my meaning, I may remind you that it was not so very long ago that in the physical training of athletes for trials of strength and endurance it was the nutritional condition of the muscles themselves that absorbed all attention; indeed, the physiological essence of fatigue was regarded as residing in the muscular elements and to be due to the toxic influence of fatigue products acting locally. We know now that the efficiency of muscles for the performance of work is dependent mainly on the condition of the cells by which they are represented in the central nervous system and that muscular fatigue is chiefly concerned with the exhaustion of the essential substance of the nerve cell. Although every specific muscular act is dependent on the integrity of the entire neuro-muscular arc the nerve element must be regarded as the dominant and all-important partner, the only one, so to speak, which has a memory and which is capable of benefiting by past experiences and consequently the only one which it will repay us to educate or train.

What is true of the muscles is true of all other organs, and a point that I particularly wish to emphasise in this paper is that although most of our organic functions are automatically conducted—that is to say, without conscious participation in them on the part of the higher intellectual centres—nevertheless, each and every nerve centre, no matter how humble its function, has a sort of unconscious memory of its own, which enables it to repeat again the part it has already played, and it is in the development of this unconscious memory that our efforts in the physical training of children can bear most useful fruit.

When we come to examine the phylogenetic history or evolutionary development of the so-called nerve centres which control the organic functions of the body, we find that some of them are extremely ancient and represented in animals which take a position in the scale of evolution far down near the roots of our genealogical tree. For instance, the cardiac centre may be mentioned as a case in point. The nervous elements of which this centre is composed have been endowed with their specific function from a very early stage in our evolution. From simple rhythmical contractions in an uncomplicated vascular tube has evolved the elaborate cardiac mechanism of the mammalian heart. From almost undifferentiated rhythmically contracting protoplasm there has come about a further and further separation of the neural and muscular elements until in the advanced stage of evolution presented in our own cardiac mechanism the neural elements are segregated in a defined area called the cardiac centre and the muscular elements after very specialised differentiation have become arranged into one of the most efficient mechanical machines for the propulsion of fluid that it is possible to conceive.

This nerve centre born in habits of rhythm in the days when it was structurally indistinguishable from its muscular connexion has continued in the habit of rhythmical periodicity ever since; rhythm has been stamped on it, ingrained in it, and ground into its very soul, so that long before the human fœtus is born the heart is beating with its normal periodicity. The respiratory centre, though also an extremely ancient centre, is as compared with that of the heart a mere bantling; its education was initiated when our amphibious ancestors took to terrestrial habits and has continued ever since in automatic and rhythmical activity; its education has been so prolonged and persistent that although before birth it is inactive in the human embryo, nevertheless immediately afterwards it assumes its normal functions without any further re-education. I have taken these two centres as examples of automatic administration, because so stereotyped have become their functions that there is practically nothing to teach them. Indeed, generally speaking, it may be said of nerve centres that the more ancient their phylogenetic history the more permanent is the form of their activity, the earlier is the date of their appearance in the developing embryo, the less conscious are we of their existence, the less readily are they upset by extraneous circumstances, and the later are they to cease working at the final organic dissolution of our bodies.

I do not mean to imply that these ancient centres cannot be educated to higher degrees of functional efficiency by appropriate means but I do mean that so stereotyped are they in their habits that, unlike other centres to which I shall presently refer, they are not likely to go wrong under the ordinary conditions of life; neither do they require any artificial instruction. There are, however, other centres of less antiquity, which, although very apt and ready pupils, have to be trained by individual experience to the efficient performance of their duties. The nerve cells which compose these centres very lightly take the path of least resistance, and under similar conditions and in the face of similar stimuli they behave in the same way that their ancestral representatives have behaved before them, but even in the case of such comparatively ancient centres as those which subserve the function of temperature regulation a very considerable degree of education is necessary, and the manner in which these will subsequently perform their duties depends very largely on the nature of this educational experience.

Before I proceed to discuss the practical details involved in the training of centres which are not initially quite automatic in their functions, I may perhaps be permitted to make a few remarks on the varying degrees of receptiveness shown by such centres in different individuals to one and the same kind of educational discipline. It appears to be a property peculiar to all nerve cells to acquire with facility habits of rhythmical activity. The permanence and constancy of the cardiac, respiratory, and menstrual functions are instances of physiological periodicity of this kind. Similarly we are familiar with the fact that under pathological conditions nerve centres tend to assume a like periodicity in the storms or disturbances to which they are subject. Thus attacks of epilepsy, migraine, asthma, and other spasmodic neuroses very frequently recur at similar intervals of time. Tics and habit spasms are instances of nerve centres acquiring the same kind of rhythmical phases that are familiar in the case of the cardiac and respiratory centres. The thermotaxic or heat-regulating centre very readily falls into similar habits of variation, as is instanced by the parallelism in the undulations of the diurnal temperature chart and in the peculiar character impressed on the fever temperature of persons who have once been the subject of malarial disease.

Children frequently afford instances of rhythmical movements in various muscle groups and among these may be mentioned the habit of rhythmical sucking. This habit which in the first instance is due to bad management and the constant application of the comforter or nipple to the mouth soon becomes automatic and rhythmical and quite independent of the stimulus which originally set the movement in operation. It is a habit which is closely associated with that of tongue sucking, chewing, and possibly with that of smoking and sweet eating. The ease with which good as well as bad habits can be impressed on the plastic material of developing nerve cells should be borne in mind in connexion with the promotion of regular habits of sleep, relief of the bowels, and the digestion of food. The neglect or the want of orderly management in the early education of infants and young children in respect of these particulars is one of the important causes of irregularity in sleeping, digestion, and defæcation, bad habits which in latter life so seriously interfere with our bodily comfort.

Speaking on the subject of the acquisition of habits, I would suggest that super-alimentation and gluttony represent to a large extent the perpetuation of habits acquired during infancy and early childhood. They imply over-development of the nerve centres which preside over the functions of digestion. The centres concerned are often trained and educated in habits of continuous, rather than of periodic, activity. The sense of hunger which prompts the intake of food is a psychological complex which is compounded of reflex impressions originating in the stomach and of independent psychological events which manifest themselves more or less automatically in the sensorium and which are partly due to various impressions reaching it through the nerves of special sense and partly to the hypertonic condition of the centres themselves. Under conditions of over-development of these centres there may be an imperative call for a constant intake of food. This pseudo-hunger, this cry of the gastric centres for some outlet for their too exuberant energies—some objective on which to vent their organic passion—is a very different thing from true physiological hunger which represents the summated demand of the tissues generally for food to satisfy their nutritional requirements. These centres should be trained and educated during early infancy and later childhood in periodic habits of functional activity, alternating with periodic habits of functional rest. In this way not only will they perform the work that is required of them in a more efficient manner, but the whole series of diseases which depend on the excessive intake of

food will be deleted from the list to which civilised man is erroneously supposed to be born the heir.

Some children are very much easier to train or to educate in the normal performance of the organic functions than others. Thoroughly degenerate infants lose, or rather, we should say, never acquire, proper control over such ancient, automatic, and stereotyped actions as those exercised by the cardiac and respiratory centres; others of a lesser degree of degeneracy fail to acquire complete and coördinate control over such easily managed functions as those of sucking, deglutition, &c. Personally I always take a most unfavourable view not only of those infants who require artificial stimuli to induce natural respiration at the time of birth but also of those who fail in coördination of such primitive muscular acts as those involved in sucking, swallowing, and in the motor functions of the stomach and bowel. How very easily these indications of incompetent nervous control can be overlooked in early infancy is illustrated by the fact that I have twice seen infants operated on for tongue-tie who were really examples of inherited nervous degeneracy and who were unable to perform the simple coördinated function of tongue extrusion.

Precocious children, especially those born of intellectual parents, acquire early control over the higher cerebral centres which depend for their activity on the coördination of impulses reaching them through the nerves of special sense. As a rule, too, in such children the lower centres which administer to the organic functions are exceedingly receptive to educational stimuli; but too often they develop at a rate which is incompatible with permanency and stability and soon show signs of premature decay. The nervous instability of these precocious children who have anticipated the natural progress of evolution and lived before their time cannot always be easily distinguished from that other form of nervous disability which is truly degenerative and indicative of a reversion to a more primitive type. Indeed, it is very difficult to say what is degeneration and what is evolution.

That higher sensitiveness of the nervous system to external stimuli, which in so-called neurotic individuals is very often the basis of their genius and intellectual superiority, carries with it at the same time certain disadvantages when viewed from the standpoint of the lower centres. For these centres, owing to their inherent excitability and sensitiveness, are not only liable to explode with dynamic energy in the face of subminimal stimulation, but they also tend to discharge neighbouring and associated centres by permitting of an overflow of their excessive energy. Thus in neurotic infants, provided with hair-trigger centres of this kind, the insignificant stimulus of an erupting incisor tooth may provoke not only local manifestation but even a general overflow of incoördinated and explosive discharges which take the form of convulsions. Involuntary nocturnal enuresis and involuntary masturbation in infants are examples of the hair-trigger-like action of the lumbar centres. Spasmodic asthma and, indeed, I would venture to suggest bronchitis, are similar explosive neuroses of the respiratory centres, and spasm of the pylorus and larynx affords other instances of a like instability in other cell-groups in the central nervous system.

The sound education of these lower centres in neurotic subjects is a matter of great difficulty; two main principles, however, must be borne in mind. Firstly, that all these centres are hypersensitive to external impressions, and that they respond to stimuli which in normal and stable children would be subminimal and incapable of eliciting a discharge, and secondly, that the memory of these centres is highly developed, so that they very easily contract habits, both good and bad. Neurotic children should therefore be protected from every possible form of strong stimulus, whether this stimulus take the form of food, of extreme degrees of cold or heat, of light, of sound, of pain, or of pleasure—otherwise their centres will explode with violent and ill-coördinated energy, and the vicious habit will be perpetuated to the detriment of the harmonious coöperation of the organic processes of the body.

I have referred to the pathological overflow of ill-coördinated and stormy nervous disturbances which pass from one centre to another as the result of supermaximal stimulation, and by way of illustration I would mention the violent jump which a nervous child may make when he hears a loud and sudden noise. I may add that exhaustion of contiguous centres is an analogous consequence of longer and more sustained stimulation. Instances of this kind are familiar in the exhaustion of the centres governing the acts of defæcation and micturition, which follows as the result of prolonged labour in women; the spinal centres which control these muscular coördinations are in their anatomical relationship closely associated—and exhaustion in any one of them is followed by exhaustion in the others. Again, the whole arm, or indeed the whole body, may become tremulous and incapacitated for finely coördinated actions if the centre for so small a muscle as the extensor indicis become fatigued by intermittent contraction. There is, however, a physiological corollary which follows from this reciprocal interaction between centres and it is that the energy stored up in one centre can be drawn upon by adjacent centres when the latter become exhausted. This reciprocal support is well shown in the case of the higher cerebral centres, indeed, as Dr. L. H. Gulick[2] says, "the motor brain seems to be a sort of battery furnishing power for intellectual labour." Physical endurance as well as intellectual endurance depends, not only on the degree of development of the special centre concerned but also upon the storage capacity of the whole battery of centres. The fact that the motor brain can act as a sort of storage battery for the display of intellectual labour and that there can be an exchange of energy between more or less closely associated centres emphasises, in a physiological sense, the importance of an adequate development not only of special motor centres but of every available nerve-cell that can take part in any possible muscular coördination.

It has been said, and I believe truly said, that both in animals and in man "the scale of intelligence corresponds to the number of possible muscular coördinations, the more complicated the neuro-muscular apparatus the higher the intelligence." Indeed, whether we think, feel, or will, we repeat, as it were, in subjective pantomime the neural and muscular process whereby we obtained our original information. In view therefore of its influence on the development of the intelligence apart from every other consideration the training of the muscles and the various muscular coördinations from earliest infancy onwards is a matter of the utmost importance. Infants and children should not only be encouraged to develop their motor centres by the voluntary exercise of their muscles, but they should be systematically taught movements and combinations of movements for which they show no special inclination. Clumsy and ill-coördinated movements are indicative of similar methods of thought and there is no physiological stigma of degeneracy that more accurately reflects a debased quality of the central nervous system than want of adjustment in the finer muscular coördinations. Although no amount of training or education will convert a nervous system that is intrinsically inferior into one that is even relatively good, nevertheless a great deal can be done by educational discipline to compensate for initial inferiority and to raise it to a higher standard of functional efficiency.

Without entering into details and special methods of muscular training for infants and children, I would refer to a general principle which applies not only in this case but in the training of all centres throughout the cerebro-spinal system, and this principle is that each centre should be developed in its natural order—and by natural order I mean the sequence in our ancestral history in which each has been acquired. Certain muscular coördinations are, in this phylogenetic sense, comparatively old, as, for instance, the coarse movements of the limbs and trunk, so also are the grasping movements of the hands. These latter are well developed at the time of birth, but the independent and finer coördinations of the fingers, in conformity with their more recent acquisition, show no spontaneous tendency to development until the child is considerably older. "Nothing but disaster," says Dr. Gulick, "can be expected if we attempt to force motor education out of its natural order." The education of any part is best done when that part is ripening and the physiological moment is determined in accordance with the antiquity of its acquisition. Anticipation or procrastination are equally fatal. "When," says the same author, "special attention is given to specific exercises demanding skill in distal groups of muscles, before the more proximal have been trained, we often find neuroses supervening." Instances of this kind are demonstrated by infant prodigies who have been prematurely trained in special lines of muscular efficiency—as, for instance, in playing the violin or piano. It is therefore thoroughly irrational to teach

[2] Cohen's System of Physiologic Therapeutics, vol. vii., p. 241. Ibid., p. 242.

children many of the favourite kindergarten occupations, such, for instance, as the threading of beads, or to allow them to learn to write in a small cramped hand before they have learned to control the larger groups of muscles which are used in ordinary gymnastics and in large, bold, free-hand drawing. As infants they should be encouraged to flex and extend the arms and legs while later they may be taught the finer manipulations. The interest of girls in sewing and of boys in shooting, throwing, and other games in which skill is called into play, which usually begins to evince itself when the child is some six years old, suggests the psychological moment at which the centres which control the actions involved should be submitted to educational discipline.

Although I myself might find it interesting to explain in detail how such centres as those which control the functions of digestion, excretion, secretion, respiration, vaso-motion, and the like can be trained in habits of orderly and coördinated action, I am afraid if I did so I should greatly exceed the limits assigned me. I shall therefore conclude what I have to say on the subject of the training of nerve centres in children by giving a single illustration in the instance of the heat-regulating centres of the sort of educational discipline which I believe to be generally applicable to the training of other centres which preside over the organic functions.

This thermotaxic centre cannot, of course, be regarded as an anatomical entity; it must be structurally as it is functionally extremely complicated. It must be widely disseminated through the spinal cord and medulla and intimately associated with centres situated in the base of the brain and in the cerebral convolutions. It must be also intimately associated with the vaso-motor centres and consist of at least two distinct parts, each with separate and antagonistic functions; but for the sake of argument it may be spoken of as a distinct centre in the same way that other groups of cells which subserve other functions are spoken of as nerve centres, although probably they are incapable of anatomical definition. The nerve cells, then, which subserve the function of heat regulation in the human body and which in the aggregate represent the so-called thermotaxic centre, have only recently in our ancestral history acquired the distinctive function of maintaining a constant temperature in the body. Indeed, we need descend no further in the vertebral scale than to the amphibia to find examples of cold-blooded animals in which the heat-regulating centres are in an extremely primitive condition or practically absent altogether. In such poikilothermic or cold-blooded animals, although the temperature of the body is generally slightly above that of the surroundings, there appears to be no regular nervous mechanism for dissipating heat, although there are rudimentary mechanisms for increasing combustion when the external temperature rises. At any rate we may say that in all animals lower down in the animal scale than mammals and birds there are no proper centres for heat regulation. And therefore we are justified in saying that the ancestral history of our own heat-regulating centres is, as compared to that of other centres which subserve organic functions, of recent origin. Owing to the fact that these thermotaxic centres have only been recently acquired it is not surprising that at the time of birth they are in a comparatively undeveloped condition, that they are at all times easily disorganised, and that they require a considerable amount of experience or training before they w[illegible] in an orderly and efficient manner. At the time of birth the functions of these centres are so ill developed that if the infant is exposed to high or low degrees of temperature he is liable to perish; even under the normal conditions to which an infant is exposed immediately after birth there are a very serious fall of temperature and some risk. It is further of very great importance that the newly born infant should at all times be protected from sudden variations in temperature, otherwise the shock may so completely disorganise the still rudimentary centres that normal heat regulation of the body temperature is unsatisfactorily carried out in the future, and if this be so the child is naturally liable to take a chill owing to the lowered powers of resistance involved in such reduction of temperature. For the complete establishment of the normal functions of the heat-regulating centre exercise, experience, and training are required. During intra-uterine life the fœtus is immersed in a water bath of constant temperature and therefore experiences none of those variations in thermal stimulation which are necessary for the proper education of this centre; at birth its education commences but owing to the extreme delicacy of its organisation this education must be slow and deliberate. It is true that infants of great vitality can survive exposure to considerable degrees of cold even immediately after birth but it is very seldom that the blood temperature is not greatly reduced by such exposure, and even if the infant survive it is more than probable, as I have said, that his heat-regulating mechanism will have been greatly strained in the process. Different infants show varying degrees of amenability to educational discipline no matter what the particular nerve centre which is subjected to the *régime*. For instance, if an infant be kept at a constant temperature his educational progress as far as heat regulation is concerned will be greatly delayed and fail to benefit by experience during the most impressionable and plastic period of his existence. The lessons of youth are always the best learned but the youth of the thermotaxic centre is evanescent and by the time that a child is a year or so old this centre is almost grown up. And when this is the case he learns far more slowly. I do not propose to refer in detail to the exact manner in which the education of this centre should be carried out. Broadly speaking, it consists in the careful exposure of the infant to air and water at successively lower and lower temperatures and with greater and greater ranges of variation. The temperature of the bath should, after the first few weeks of life, be gradually reduced, say a degree at a time, from blood temperature down to 70° F. The temperature of the sleeping room should be gradually reduced from 70° to 50°, or even considerably lower, and the number and the thickness of the clothing should be reduced in a similar systematic and carefully graduated manner. In this way the centres are trained to accommodate themselves not only to considerable changes of temperature but even to withstand the shock of sudden and intense changes. I take it that the pathology of a chill and of the vagaries of temperature which follow is essentially a dislocation of the thermotaxic centre by supermaximal stimulation. But whether the stimulus is in any particular case supermaximal or not depends as much on the efficiency of the centre itself as on the intensity of the stimulus applied—that is to say, whether cold produces a shock or not depends on the resistance of the centre and not only on the absolute intensity of the stimulus. The effects of cold, and indeed of heat, on the imperfectly developed centres of prematurely born infants are most striking. Not only is there a serious variation in blood temperature but the disturbance originally engendered in the thermotaxic centres by such exposure may pass over to other nerve cells and produce generalised nerve storms which take the form of convulsions or epileptic seizures. I have, indeed, seen somewhat similar indications of shock in far older children who have been suddenly immersed in colder water than that to which they are used, but in these cases there was always a clear history of ill-development of the heat-regulating centres. And even grown-up people sometimes suffer from attacks of migraine from the taking of cold baths to which they are not accustomed.

This, then, is the sort of scheme of education that should be applied for the training of the heat-regulating centres in children; *mutatis mutandis* the same kind of *régime* is applicable for the training of other centres. In all cases the importance of avoiding supermaximal stimulation should be kept prominently in view. Think of the liberties that are often taken with these delicate organisations at the very threshold of their developmental history! Think of the indigestible masses of casein which are allowed to form in the virgin stomach of the newly born infant and think of the supermaximal effect such stimulation must produce on the immature centres which control the processes of digestion! Think, again, of the supermaximal stimulation of a glycerine suppository in the rectum of a newly born infant! What an early education for a centre which has still to learn its business! What wonder that so many children and adults suffer from constipation when in many of our text-books we are told that there is no safer method of relieving obstinate bowels than by enemata or glycerine suppositories. Safe, yes; but if you tamper with the delicate nervous mechanism of defæcation in this way and educate the centres in a tolerance of supermaximal stimulation how can you expect them to respond to the mild and natural excitation which is to be their physiological and normal experience?

The training of the humble nerve centres which preside over the organic functions may not claim the same attention

that is necessary for the education of the higher cerebral centres but I maintain that it deserves far more consideration than it usually receives and that the two are very closely bound up together. At the cost of again repeating myself I would remind you that any sound method of educational discipline of the lower nerve centres in children must take cognisance of the three fundamental principles to which I have already referred—namely, the avoidance of supermaximal stimulation, the prevention of the acquisition of explosive neuroses through the habit of over-action, and the education of each centre in its natural order of development.

South Kensington, S.W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ASCITES TAPPED SIXTY-NINE TIMES.

BY FREDERICK H. MABERLY, M.R.C.S. ENG., L.R.C.P. EDIN., L.S.A. & L.M.

THE patient, a man, aged 52 years, consulted me first in March, 1901. He was then suffering from an enlarged, flabby, and very irregular heart, a liver reaching three inches below the ribs, and on boiling some urine in a test tube the deposited albumin reached about half way up the column of fluid. During the next few months four of our Birmingham consultants saw him with me and all felt that he had only a short time to live. His legs became very œdematous (for this I used acupuncture with very good results) but on March 11th, 1902, I had to relieve the abdomen which had gradually filled; this I did in the ordinary way with the usual trocar and cannula, but finding how exhausted he was after the operation I concluded that the very rapid extraction of beat contained in two gallons of fluid was the cause and determined to adopt another method, so on the next occasion, March 27th, I used a small exploring needle the cannula of which had a diameter of only one-sixteenth of an inch. The drawing off of the fluid this time gave him no inconvenience, but, on the contrary, he was greatly relieved and felt perfectly comfortable on the next day. I tapped him 24 times in 1902, 21 times in 1903, 10 times in 1904, and 14 times in 1905, in all, 69 times, which I think is a record. The *modus operandi* was as follows. First I sterilised my instruments by placing them in a solution of formalin, sponged the skin, and washed my own and the nurse's hands with the same; then I injected hypodermically half a grain of cocaine deeply, allowing seven or eight minutes to elapse, when after emptying the bladder, I punctured through the linea alba, midway between the umbilicus and pubes, then removed the trocar and left the abdomen to drain, which generally took about one and a half hours. The patient's sister, who nursed him most assiduously throughout his illness, attended to the draining, then removed the cannula, and applied a small piece of sterilised wool, with adhesive plaster to the puncture and the operation was over. A belt was worn to support the abdominal walls. After adopting this plan the patient never suffered the slightest pain during the operation, nor had he any depression afterwards but was always much better and more cheerful on the next day, although the usual quantity of fluid removed was about two gallons.

I report this case thinking that it may be a help to my professional brethren in treating similar cases. The patient died from coma on March 14th, 1906 but until shortly before his end he had a very comfortable existence during the four years during which the treatment undoubtedly prolonged his life.

Birmingham.

A NEW METHOD OF OPERATING IN PANNUS.

BY WILLIAM PRIMROSE, M.B., C.M. GLASG., M.R.C.S. ENG.

FOR some time I have been employing a new method of operating in cases of pannus which is so simple and satisfactory that I think it deserves to be better known. The operation consists in causing an extravasation of blood into the subconjunctival tissue around the cornea. This by its mechanical pressure and by acting as an irritant foreign body setting up a localised inflammation, causes the obliteration of the vessels which vascularise the cornea. The only instrument required is a small sharp-pointed knife—a Beer's cataract knife does very well for the purpose. The point of the knife is passed through the conjunctiva at a distance of two or three millimetres from the cornea and made to puncture one of the larger blood-vessels. The knife is then withdrawn. The conjunctival wound should be as small as possible and made obliquely by holding the knife at an acute angle with that part of the surface of the eyeball which is being operated upon. In this way there is no external hæmorrhage; but bleeding takes place into the subconjunctival tissues and is arrested automatically by the pressure of the extravasated blood upon the vessel walls. In like manner many of the smaller vessels in the vicinity are mechanically closed. This mechanical action is increased by the formation of a coagulum, the fibrinous part of which shrinks and makes the whole mass smaller. Extravasated blood acts as an irritant, probably chemical as well as mechanical, so a non-infective inflammation is set up which results in the absorption of the blood clot. This process acts as a counter irritation to the inflammation of the corneal tissues and so tends to remove the seat of inflammation and the supply of blood from the diseased cornea to the clot, where the effects of the inflammation are comparatively trivial. By the time the blood clot has disappeared the blood-vessels in the cornea affected by the operation have shrivelled up and the cornea has regained much of its transparency. The whole pannus may be treated in this way at one time or the operation may be repeated from time to time, only a part of the pannus being treated each time. The latter is always advisable when the pannus is marked, as the inflammatory reaction is sometimes very severe and accompanied by a good deal of pain. Although the structures in the anterior part of the eyeball are all more or less affected by the inflammation this is easily controlled and subsides in a few days with the application of suitable remedies.

A patient, 35 years of age, recovering from trachoma had pannus equally marked in both eyes. He had one eye treated by the new method and the other by peritomy. Although the process of cure was attended by much greater suffering in the eye treated by the new method, the result of the operation was much more satisfactory than was that in the eye on which peritomy was performed.

Glasgow.

A CASE OF RUPTURE OF THE SAC IN ECTOPIC GESTATION.

BY JOHN H. TONKING, M.B. LOND.

MY excuse for publishing this case is the paucity of symptoms on which reliance had to be placed in order to arrive at a diagnosis.

The patient was a woman, 39 years of age, who had had 12 pregnancies, in the ninth of which she was delivered of twins. Her twelfth child was born on July 2nd, 1905, and was not nursed by the patient. Menstruation recommenced early in October and continued regular until early in January, 1906, when it stopped, but came on early in February. Instead, however, of ceasing as usual at the end of a few days it continued intermittently and not profusely until March 10th, when the patient was seized with violent abdominal pain causing vomiting. She was seen by a colleague who found her with no rise of temperature but with a pulse-rate of 120. Opium pills were given and on March 11th my colleague reported that she had less pain but that her pulse was still quick. The place of greatest pain was over the region of the gall-bladder. On March 12th at 6 P.M. I was requested to see her and found her in an attack of great pain, with no rise of temperature and a pulse-rate varying from 120 to 140. She was very anæmic. A diagnosis of internal hæmorrhage was considered probable and the patient was removed to the Women's Hospital at Redruth. After a consultation with Dr. Frank Hichens, ether was administered by Dr. William Blackwood, my partner, and I performed laparotomy at 10 P.M. the same night. As the patient was collapsed during the operation two and a half pints of saline solution were injected into the median basilic

vein. On opening the abdomen blood gushed out, the lower part of the abdomen and the pelvis being full of it. The hand was plunged into the abdomen and the uterus was pulled up when the bleeding point was found to be the left Fallopian tube, on which there was a longitudinal slit about half an inch long near its middle. Ligatures were put on the uterine and ovarian arteries and the tube was removed between the ligatures. The abdomen was flushed out with hot saline solution and sutured—through-and-through sutures with no drainage. The operation took about half an hour and the pulse-rate at the end was 124. The patient was put back to bed, the foot of the bed being elevated two feet. A firm binder was placed about the abdomen and one pint of saline solution was given per rectum every two hours. After the vomiting had ceased the patient was given fluid freely by the stomach and calomel was given early next day. On the second day after the operation the bowels acted freely. The temperature varied from 101° to 100° F. for 14 days, settling to normal on March 31st. She is rapidly convalescing. Although there was a missed period to suggest a diagnosis in this case there was an absence of any other confirmatory localising sign.

Camborne, Cornwall.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, PLAISTOW, E.

A CASE OF ACCIDENTAL DIVISION OF THE OPTIC NERVE.

(Under the care of Mr. G. WINFIELD ROLL.)

THE patient, a bright and intelligent looking girl, 16 years of age, was admitted to St. Mary's Hospital for Women and Children, Plaistow, E., on Jan. 20th, 1906, having on the same day sustained a wound of the right lower lid near the inner canthus. It was stated to have been caused by her younger brother who, giving effect to a violent outburst of passion when seated opposite his sister, threw a table knife straight in her face. The knife on inspection was of the usual pattern but was much worn and narrowed by long usage towards the end of the blade. The patient when admitted was in a semi-conscious condition, resembling cerebral concussion, and remained so for about six hours. There was a vertical wound in the right lower lid near the inner canthus three-fourths of an inch in length. The skin was clean-cut and from this small wound protruded a relatively enormous mass of tissue, apparently conjunctiva, muscular tissue, and fat. The globe was very markedly proptosed; the lids, swollen and dusky in colour, were tensely distended; evidently considerable extravasation had occurred in the orbit. The right pupil was dilated. The mass of protruded tissue, after careful washing with boric lotion, was with some difficulty reduced within the external wound. By the following morning the patient had completely recovered consciousness, the proptosis was diminished, and the lids were less distended. Ocular movements were examined and found to be perfect. The right pupil was dilated and inactive to direct light stimulus; consensual reaction was present. Vision was entirely wanting in the right eye; no perception of light was present. The fundus oculi appeared to be normal. The wound healed by first intention within 48 hours. On Feb. 1st there was no return of vision and the pupil was dilated and inactive to light. The proptosis of the globe had entirely disappeared. The fundus oculi and the retinal vessels remained quite normal; the optic disc was slightly pale. On the 7th the condition of the right eye was as when last noted but there was now decided pallor of the optic disc. The vision of the left eye was quite perfect and so up to the time of the accident was that of the right. Evidently the right optic nerve had sustained serious injury, partial or complete division behind the point of entry of the central artery—i.e., from ten to 20 millimetres from the globe. And, at the same time, some vein or sinus had been wounded in the orbit. The exophthalmos originally present was not at any time accompanied by pulsation nor was any bruit audible around the orbit.

Remarks by Mr. ROLL.—Priestley Smith showed in 1896 at Birmingham a case where injury to the nerve and consequent blindness was the result of peretration of the orbit by a brass rod. He remarked in describing it that he had not previously heard of a case where with this kind of injury to the nerve so little damage was done to structures around. According to Fuchs the optic nerve may be injured—i.e., partially or completely divided—by penetrating foreign bodies, stabs or gunshot wounds. Partial or complete blindness is immediately present. There is in such cases no ophthalmoscopic change visible in the fundus until after some weeks, when the optic disc becomes pale and presents a picture of simple atrophy. If, however, the optic nerve is divided or injured so far forward that the central vessels are likewise divided characteristic symptoms develop analogous to embolism of the central artery, the arteries of the papilla and retina are bloodless, and the retina soon becomes cloudy.

The records of the cases of penetration of the orbit and injury of the nerve causing blindness appear not to be frequent. The records of cases which I have examined present certain similar features in the kind of accident that occurs and in the insignificant character and rapid healing of the external wound and in the scanty changes to be noted in the papilla as it becomes atrophic. Penetration is not unfrequently not suspected, even a foreign body remaining in the orbit, when the patient seeks medical advice for the loss of sight in the eye. These observations do not apply to gunshot injuries which are often attended by extensive laceration of the surrounding structures. The possibility of the onset of pulsating exophthalmos at a more remote date in a case such as mine which bore evidence of injury to vessels deep in the orbit has, I think, to be borne in mind. I am indebted to Dr. J. Sidney Pearson for the notes of the case while in hospital.

SALOP INFIRMARY, SHREWSBURY.

A CASE OF PHLEBOLITHS OF THE UPPER ARM.

(Under the care of Mr. L. J. GODSON.)

FOR the notes of the case we are indebted to Dr. John Saffley, house surgeon.

On Feb. 28th, 1906, a male, aged 31 years, was admitted to the Salop Infirmary, complaining of a painful area of many years' duration in his right upper arm. He stated that about 15 years ago he fell off a hay-loft and struck his right arm against the edge of a barrel. There was considerable swelling near the middle of his upper arm on its outer aspect. He was seen by two medical men who diagnosed a severe bruise and said there was no fracture. The parts were rubbed with oil but the lump never quite disappeared, though it became reduced in size. He felt pain at night if he lay on the affected arm or after extra work. Recently the pain had become worse and during the last three months he considered that the swelling had increased in size.

On admission there was no definite swelling to be noted in the arm and there was no difference in the circumference of the two limbs. On pressure over an area below, and posterior to, the insertion of the deltoid marked tenderness was elicited. On deep pressure here some thickening could be made out, giving a knotty feeling to the touch.

On March 2nd under chloroform Mr. L. J. Godson made an incision over the affected area, splitting the outer head of the triceps. Three small encapsuled nodules were found adherent to branches of the superior profunda vein. The largest was of the size of a cherry-stone and the smallest was of the size of a pin-head. These were carefully dissected off the veins, all bleeding points were ligatured, and the wound was closed in the usual way. The wound healed rapidly, the stitches being removed on the eighth day, and the patient was discharged cured on March 10th.

Naked-eye appearances.—On section the largest nodule was found to have a calcareous envelope, then a layer of soft white material, and in the centre a hard core.

Microscopic appearances.—Dr. T. Law Webb, pathologist to the infirmary, reported as follows: "The small round

growth is no doubt a phlebolith, or at any rate had a similar origin to such concretions. It has a fibrous structure, calcified in places. There are no nuclei visible anywhere."

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Observations on Endemic Goitre in the Chitral and Gilgit Valleys.

A MEETING of this society was held on April 10th, Mr. J. WARRINGTON HAWARD, the President, being in the chair.

The SECRETARY, in the absence of the author, Captain R. MCCARRISON, I.M.S., read a paper dealing with the results of three years' observation in Northern India in two districts, Chitral and Gilgit. The Chitral country was mountainous. The villages were all situated on alluvial fans at the mouths of nullahs. The rocks were everywhere metamorphic, gneiss and slate predominating. But the most goitrous villages were invariably associated with limestone outcrops. The climate was temperate and the rainfall was small. The people were poor; their food was entirely vegetable, consisting of the poorest grains. Fresh meat was quite beyond their means, while salt was a luxury unknown to any but the richest families. The water-supply was in all cases derived from the melting of the snows on the hills above. It ran down the nullahs as a turbulent mountain stream, taking up what matter it might, either in solution or suspension. In the summer months the water was invariably grey from the presence of fine sediment. There were no real glaciers in the district under observation; the water was snow- rather than glacier-water. The villages had no wells and, owing to the slope of the ground and the nature of the soil, water did not and could not stagnate. The analysis of the water-supply showed: 1. That the waters varied largely in composition for the various villages. 2. No single dissolved ingredient appeared to have any influence in the production of the disease. 3. The total solids and the total hardness of the water appeared to have no influence in the production of the disease. Goitre was very common among children of all ages. Children at the breast were not free from the disease. Females appeared to suffer more than males. In one instance observed 18 per cent. of susceptible individuals, natives of non-goitrous areas, developed the disease after a residence of four months in one of the most goitrous villages. In another case, of ten young men from the plains of India, two or 20 per cent., developed goitre in two and a half months. It was further noticeable that 32 per cent. of male children under one year of age in three of the most goitrous villages taken together suffered from the disease. These might, of course, be congenital but it was reasonable to suppose that some were acquired. Symmetrical goitres, diminished in size except in old cases, when the subject left the area where the disease was acquired. They again increased in size on return. This rule would appear to apply even when he went to another goitrous district if sufficient time had not elapsed for him to come under the new influences. Experiments were tried on the influence of boiling and filtering waters supposed to be capable of causing the disease. Of ten dogs experimentally tied up in extremely goitrous houses for two months, five being given boiled and five ordinary water, one of those kept on ordinary water developed the disease. In Gilgit and Nagar the geographical, physical, and social conditions were similar to those in Chitral. The water-supply came from a single source and was conveyed to the different villages in open channels. This water was capable of producing 11·8 per cent. of goitre at its source, while at its terminus, after having served indifferently as drinking channel and open sewer for the villages on its banks, it caused the disease to the extent of 45·6 per cent. There was, however, a village served separately by a small spring entirely free from the disease in which no case of goitre due to the drinking of this water could be traced. This fact pointed to the very important conclusion that the other water-supply was the vehicle of the disease in Gilgit. It was noteworthy that the villages highest up on the channel showed the lowest percentage of disease and that this percentage increased proportionately until a maximum was reached at the terminus. This increase, however, did not occur in children under 15 years of age. A considerable outcrop of limestone occurred in the nullah from which Gilgit derived its water-supply. Qualitative analysis of the waters of these different villages showed no variation in their composition. Organic impurities were not readily detected in the water lower down owing to the fact that this water was continually being replaced by a purer supply from above. The chief characteristic of the water near its source was the presence of a large quantity of diatoms, amongst which eucyonema and navicula were most common, together with the absence during the winter months of much matter in suspension. At its terminus, on the other hand, diatoms appeared to be fewer in number, while suspended matter was extremely plentiful. Captain McCarrison next dealt with the case of Nagar. Up to six years ago Nagar was an independent State, cut off by inter-tribal jealousies from practically all communication with goitrous districts. During recent years intercourse with the outer world had become more free. Some five years ago certain individuals suffering from goitre settled in the country, where previously the disease was absolutely unknown to originate. Throughout Nagar goitre is now spreading in a typically epidemic form, its first victims being among children under ten years of age. The water-supply of Nagar, where the disease is spreading, came from a spring. This spring was said to have existed from time immemorial. The chemical composition of its water had presumably not altered. The conditions of life of the people were the same. The only added factor was the introduction of goitre from without. It appeared also evident that it was by means of the spring water that the disease was now spreading, for the 12 children affected were residents of that part of Nagar supplied by the spring. It was further important to notice that the family first to import the disease lived at the head of the spring and that no cases of goitre were observed where water from other sources only was drunk. The following conclusions were drawn:—1. The water-supply of Gilgit was the vehicle of the spread of the disease. 2. This water-supply was able, at its source, in its unassisted state, to produce 11·8 per cent. of goitre. At its terminus, after passing through seven villages and proportionately increasing in its goitre-producing powers on its downward passage, it reached a maximum of 45·6 per cent. 3. There must, therefore, between source and terminus, be added some poisonous element representing this difference of percentages in the disease. 4. The added element was matter in suspension. 5. The matter in suspension might be either (*a*) inorganic substances or (*b*) micro-organisms. 6. The striking case of Nagar could only be explained on the latter (*b*) assumption: that was to say, the introduction from without of a micro-organism into a suitable water-supply, and the consequent spread of goitre in a typically epidemic form. The hypothesis which assigned to micro-organisms the causation of the disease was further supported by the following facts: (1) the large percentage of goitrous children under one year of age in Chitral could be explained in this way without recourse to a conclusion that such cases were congenital: (2) it accounted also for such instances of the disease which could not be traced to a water-supply and admitted of the broader view that water, if it was the chief vehicle of infection, was not the only one; (3) it explained readily the regular increase of the disease from source to terminus of the Gilgit water-supply; and (4) finally, it explained the differences in the charts for the areas of Chitral and Gilgit which seemed to indicate the natural, if slow, end of an epidemic of goitre.

MR. JAMES BERRY referred to the great importance of discovering the cause of this disease, with which were associated other conditions of physical and mental deterioration. There were two methods of studying the subject—first, to investigate the disease in one place, all the surrounding factors being taken into consideration; and, secondly, to visit and to investigate numerous goitrous districts. He had adopted the second method and had visited many goitrous districts in this country and abroad. Captain McCarrison's observation agreed with his own observation that goitre occurred most commonly in mountainous districts, and he showed a map demonstrating the fact that goitre occurred in the mountainous districts of France and also in the hilly parts of England. Another striking point was the connexion between limestone and goitre. He quoted statistics to shew

that 50 per cent. of the people who lived in limestone districts developed goitre, whereas of those who lived on clay only about 1 per cent. suffered from the disease. What it was in water which produced goitre was unknown, but that the drinking of certain waters would produce goitre was a well-known and established fact. He quoted the instances of two adjacent villages with separate water-supplies—the one was goitrous, the other not. The village with goitrous inhabitants introduced a fresh supply of water and the goitre disappeared. He also quoted a similar instance where soldiers in one fort became goitrous but when moved to another fort they rapidly got well. Animals which lived in goitrous districts became goitrous. Lime, magnesium, and iron have all been thought to cause the disease but none furnished quite a satisfactory explanation. He believed that the poisonous substance was not in solution in the water but only in suspension, and the greater frequency of the disease during the spring of the year was explained by the greater amount of suspended matter in the water.

Dr. LOUIS E. STEVENSON said that numerous theories had been advanced to account for the production of goitre but it was well established that the drinking of certain kinds of water always produced the disease. In a village in France boys used to drink from a certain well in order to produce goitre and thus to escape from military service and this water always produced the desired result. Rain-water never produced goitre and recent goitres would quickly subside if rain water were drunk. He then discussed two theories of the production of goitre: (1) the bacillary theory; and (2) the iron theory. In support of the former he said that filtration of the water diminished, and boiling prevented, the formation of goitre. Since goitre was more often produced by water drunk near the source than that taken further down stream he suggested that the bacillus might be killed by the exposure to sunlight. With regard to the second theory he showed that goitre occurred in districts in which iron pyrites were present in the geological formation.

Captain J. H. HUGO, I.M.S., said that in Nepaul goitre was present in goats, horses, and pigs, and among the poor inhabitants but not among the rich. The poor obtained their water from the river or shallow wells, whilst the rich obtained their water from the hills, the water being stored in a reservoir there and brought in pipes to the city. Many Tibetans came for treatment and they considered themselves benefited by biniodide of mercury ointment. In the hill stations goitre often occurred during the rainy season but disappeared afterwards. During the rains the drinking water contained much inorganic and organic matter in suspension. In Central India very little goitre existed and he had only seen two cases in women and both of these came from the mountains.

Mr. W. W. CLARIDGE said that goitre was practically unknown in West Africa except at one place called Mampon and at this point there was an outcrop of limestone. The water which supplied this district came out of the limestone. Ironstone was also present. About 10 per cent. of the inhabitants of Mampon were affected with goitre. It seemed certain that the disease did not follow trade routes, for although Mampon was on the direct trade route goitre never occurred at other places on the route. He agreed with the former speakers that goitre never occurred when rain water was used.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on April 6th, Sir Shirley F. Murphy, the President, being in the chair.—Dr. John Robertson (Birmingham) read a paper, illustrated by the lantern, on Some Aspects of the Housing Problem in Germany. Though, he said, there had been going on for at least 50 years in every progressive country a steady and increasing migration of the rural population into the towns it was rarely that special steps had been taken to provide for the health, convenience, or enjoyment of the immigrant masses. Owing to the lack of foresight on the part of the authorities and the haphazard methods of private enterprise large areas in the suburbs of manufacturing towns were being covered with mean and monotonous streets, without adequate thoroughfares for giving easy means of transit to the factory and works districts on the one hand and to the country on the other and without parks or open spaces within perhaps two miles or more, while the speculation in land ran the price of sites up to six or ten times their agricultural value. The habits and customs of nations differed so much that it was seldom practicable for one to adopt the laws or methods of another without some modification, but he felt that they might with the greatest advantage study the procedure of the German municipalities so far as it was concerned with extension of towns as distinguished from building and construction. Since 1875 all German towns had had power to plan out all the land within the municipal boundaries long before building was contemplated; and no street could be constructed or house built until an extension plan had been made by the municipality and approved by the Government on these plans, which, though made to fit in as parts of the greater scheme, applied to small areas, whether the land were in the hands of one owner or of many. The direction, width, gradients, and alignments of the streets were laid out by the city engineer, assisted by experts whose advice was called in by the authority on the economic, hygienic, and artistic aspects of the undertaking. This provisional plan lay at the town-hall for a month open to the inspection of anyone, ratepayer or not, who might lodge objections but only on the ground that "it was not in conformity with the best interests of the community," personal considerations not being allowed to enter and the owner himself having no more right than a private individual. The municipality, having considered the objections and perhaps amended the plan accordingly, sent it up to the Government (to the Local Government Board, as we should say) for examination and approval, this being no mere formal matter. The wider schemes were not published but kept by the authorities for their own guidance and altered from time to time if considered expedient. In anticipation of future prosperity and growth most municipalities had already provided or planned great thoroughfares—roads from 150 to 180 feet wide, with separate roadways or tracks for electric cars and motors, for ordinary vehicles, for cycles, for foot passengers, and perhaps for equestrians—radiating from the busy centres to the outskirts, with cross communications like the Ringstrassen on the sites of the walls and fortifications of the past. The cost of these very wide roads was borne by the community instead of by the owners. No one was compelled to develop his land until he chose, though where it was felt to be for the public good to connect two districts by a road the owners of the land through which it was carried were not called on to pay for it until they began to build or to let for building. When numerous small holdings were so cut up as to be to a great extent deprived of their value a local Act of Parliament was obtained for pooling, valuing, and redistribution of the lots. Provision was made for widening small streets of artisans' cottages should increasing traffic require it without the cost of demolition by leasing plots in two portions, the larger for the house and back garden and the lesser for the front garden, with power of re-entry, for the purpose of widening the road. To prevent the competition and speculation in building sites, which by inflating the price augmented the cost and rental, most municipalities had bought up large areas within or beyond their boundaries while the land could still be had at its agricultural value, but with the exception of Hamburg and a few other towns, the circumstances of which were peculiar, they preferred to promote and to assist private enterprise to doing the actual building themselves. In Ulm, however, the authority assisted working men to build their own houses, itself acting in the capacity of a very liberal building society. There were few schemes for rehousing, for there were very few slums, and bad as many of the large tenement buildings in the older quarters were, the cleanliness of the lowest classes in Germany made them appear better than they were. In many towns the workmen's dwellings were quite apart from the factories which were attracted to special areas by the provision of railway sidings and wharves. The æsthetic aspects of these plans were no less admirable than the economic, for while parks and gardens were located within easy distance of the poorest quarters, the magnificent thoroughfares were planted with several rows of trees and often led directly to forests where thousands of acres were free to the public. Straight or monotonous streets were now avoided, curves broken by public buildings, churches, &c., being substituted, and at Stuttgart, where the streets rose like terraces one above another, only the upper side of each was allowed to be built on, so that the fine panorama might be enjoyed from everywhere.—Dr. J. F. J. Sykes remarked that the front gardens in Euston and Pentonville-roads had been left with a view to possible widening but one owner after another had been allowed to

build.—Dr. F. E. Fremantle referred to Selangor in the Straits Settlements where the engineer who first laid the plans in the jungle provided, in spite of opposition and ridicule, for a town which had now in his lifetime attained a population of 70,000. He adduced the case of the "Garden City" and of Bournville, which were conducted on strict business lines.—Dr. J. C. McVail, Dr. A. Newsholme, Dr. W. Butler, and others asked numerous questions on matters of detail, to which Dr. Robertson replied that except in the case of roads over a certain width the owners paid for the making as in this country. He could not explain how urban and rural districts were respectively rated but he knew that the principles of rating were wholly different from what they were here and that the municipalities always kept a portion of their areas open and rural. The authority prescribed the alignment and width of streets, the height of the houses, and their connexion with the sewers, and so on, but all matters of construction, plans, and materials of houses were subject to the regulation of the (sanitary) police. Owners could not be compelled to develop their land and might hold it back until they could obtain by sale the unearned increment in the value of the site, but this was very rarely done.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—A meeting of this society was held at Bath on March 31st, Dr. G. W. Hamilton Cumming (Torquay), the President, being in the chair.—After an inspection of the Royal Mineral Water Hospital an ordinary meeting was held at the Guildhall.—The President remarked that as Bath had been chosen for the first meeting of the society in the provinces, and as the Bath waters were the only true thermal springs in the country, Thermal Methods had been chosen for the discussion. He hoped that cases proved to be unsuitable for treatment at Bath would be mentioned.—Dr. Charles Begg (Bath) laid emphasis on the superiority of a natural thermal water in the treatment of disease as a result of his experience here and elsewhere. Bath was the only natural hot-water spa in Great Britain. When *cold* mineral water was heated gases were given off and solids precipitated and the result approximated more or less closely to pure water. The remedial agent was still uncertain—whether the natural heat, the stimulation of nerve terminals by salines, the action of gases, or the radio-activity. An important point was the season of the year. Bath had been called relaxing in summer, but that was its strong point. They could not relax too much a patient from whom they were trying to eliminate a systemic poison.—Dr. Alexander Morison (London) remarked upon the natural pre-eminence of Bath as an English thermal spring and argued from its ancient reputation that the waters could effect much without the complication of electric baths and other modern addenda to balneological treatment. However wide might be the domain of practice in Bath or elsewhere he considered that the interests both of Bath and its invalid visitors would be best consulted by the special treatment by natural balneological methods of suitable articular and neuritic affections only.—Mr. T. Pagan Lowe (Bath) said that the thermal methods employed at Bath did not differ materially from those which obtained at other first-class balneological resorts, such as Buxton and Harrogate, and included in addition to every modern thermal water appliance, the Greville, the Dowsing radiant heat, sinusoidal electric baths, and high-frequency appliance. 40 years ago the "season," like other watering-places, was essentially a summer one but now Bath was the only winter health resort in Europe and its "season," which began in October, continued without interruption until the following June. Surgical methods as applicable to chronic joint disease formed an important adjunct to Bath treatment and were practised with considerable success.—Dr. H. Forestier (Aix-les-Bains) mentioned the various "thermal methods" which had been in use for centuries in spas and pointed out that bathing, douching, and hot vapour baths were the chief ones. About 1810 a new thermal method was brought into the practice at Aix-les-Bains, the douche combined with massage, the latter being imported from Egypt at the time of Bonaparte's expedition. This "douche-massage" seemed to be the more effective thermal method as carried out at Aix-les-Bains. Its effect on the metabolism was much greater than the simple douche. The efficacy of "douche-massage" had led to its adoption at other continental spas as well as at the British spas.—Dr. W. Johnson Smyth (Bournemouth) considered that in rheumatic and gouty conditions, and also in some forms of neurasthenia, where rapid chemical changes in the system were desirable, there could be no question as to the beneficial effect of thermal treatment. Some rheumatic conditions associated with, or due to, morbid functional activity on the part of the nervous system were readily amenable to thermal treatment. In neurasthenia thermal treatment was found to be of the greatest use. It was possible that in the early embryological relationship existing between the superficial layers of the skin and the cerebro-spinal nervous system (both derived from the epiblast) they might find a clue as to the ready response of the latter when the former was stimulated by external agencies, i.e., thermal methods.—Dr. Leonard Williams (London) said that the thermal treatment was in reality the recognition of the importance of the excretory and other functions of the skin. All thermal methods stimulated this large and important organ, and these methods constituted in reality the only means available for producing such stimulation and maintaining it over long periods of time. Herein lay the secret of that efficacy of spa treatment in chronic disease which was now somewhat tardily attaining to that recognition which was its due.—Dr. G. H. Thompson (Buxton) wished to emphasise the importance of first using thermal water in preference to other methods of treatment in suitable cases. Every form of bath, douche, &c., should be available, but the simple immersion bath was often sufficient. At Buxton, by simple immersion, about 80 per cent. favourable results were obtained. The mode of action would probably be found to lie in the molecular activity of the various constituents of the water, such as radium, nascent gases, &c., which action was transmitted through the nerve endings to the various nerve centres and thence to the tissues.—In the evening the Fellows dined together at the Empire Hotel, the Mayor of Bath and Sir Thomas Chavasse (Birmingham) being guests of the society. The Fellows were afterwards present at a reception at the Pump Room given by the mayor and corporation of Bath, when the Roman Bath was illuminated.—On the following day (Sunday) the Fellows inspected the bathing establishments and then attended Divine service in the Abbey.—Later in the day the Fellows were received at Winsley Sanatorium by Dr. Lionel A. Weatherly who gave a lecture on the Results of the Open-air Treatment of Tuberculous Disease.—Mr. E. D. Townroe (resident medical officer), Dr. StClair Thomson (London), Sir Thomas Chavasse, Dr. W. J. Tyson (Folkestone), and the President took part in the discussion.—A vote of thanks was passed by the Fellows to the medical profession of Bath for their kind hospitality and Dr. Begg replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND: SECTION OF MEDICINE.—A meeting of this section was held on March 30th, Dr. George Peacocke being in the chair.—Dr. W. J. Thompson exhibited a case of Keratosis which had been under his care. The patient's personal and family history was good and before Christmas he was quite well. Then the palms of his hands and the soles of his feet became rough, thickened, and swollen. The inside of the mouth became very much swollen and the gums covered the teeth. His eyes were bloodshot. The skin thickened in the axilla and about the elbows and chest. All the openings of the body, ears, eyes, &c., were swollen; that of the nose sometimes became ulcerated and painful. There were no indications of derangement of the internal organs; the nervous system, reflexes, and thyroid gland were normal. He had been under thyroid treatment for the past three weeks with considerable benefit. His genital organs were completely atrophied.—Dr. Wallace Beatty said that he considered it to be an example of acanthosis nigricans and exhibited a plate illustrating the affection.—Dr. John M. Finny read notes on a case of Bradycardia with Arrhythmia and Epileptiform Fits which had been under observation for nine months and which ended fatally after very severe and prolonged fits of syncope. The patient was a seemingly healthy married woman, aged 42 years, the mother of three children, in whom there was no evidence of any cardiac or arterial disease or organic disease of any of the viscera. Her illness began 14 months before admission to hospital by a fit of ur consciousness, in which she fell, and which was followed by many similar slight syncopal attacks. She was delivered of a healthy child three months before being under Dr. Finny's care. The child died at the age of seven weeks from convulsions, and since his death the "weaknesses" had become more frequent—as many as 12 occurring in a day. The woman's pulse-rate on admission in June, 1905, and all

through was very slow or infrequent, usually ranging from 20 to 28 in a minute. This slow pulse was unattended by any consciousness on the patient's part, but when the pulse-rate was retarded from six to ten seconds she had an epileptiform fit lasting from five to ten seconds, in which her face at first became pallid, with the eyes turned up, then flushed, and with a sigh she came to, her eyes filling with tears and with an anxious, dazed look. Sometimes she fell back unconscious and was more confused and dazed after the fit was over. This last variety was preceded by an aura, as of heat rising from the epigastrium round her heart and up to her head, and the worst variety which was present during the last four days of her life was sudden and complete unconsciousness, in which, to all appearance, she was dead. All the limbs were relaxed, there was no pulse at the wrist for seven minutes, there were no respirations for four minutes, and only an occasional flutter of the heart gave any indication of life and encouragement to the house surgeon to persevere in artificial respiration, injection of strychnine, and oxygen inhalation. This prolonged pulselessness was followed by semitonic spasm, restless and purposeless movements, and cries and groans, the unconsciousness lasting for four and a quarter hours on the day but three before death. Dr. Finny called attention to the observation frequently repeated during her stay in hospital—that the unconscious attacks were preceded by marked cardiac arrhythmia, and claimed that their cause lay in the cerebral anæmia, produced by the long periods of ventricular arrest, and not that the epileptiform attack caused the arrhythmia or heart block. He adduced the evidence of the pulse-tracings of the jugular vein being three times as frequent as those of the radial artery, and called special attention to the advantage that he had obtained of the x rays in demonstrating that for each beat or shadow of the ventricles three auricular shadows could be counted. In discussing the want of agreement between the auricular and the ventricular systoles, the myogenic theory of the heart's movements and rhythm of Gaskell were referred to, and the principal theories of the causation of the condition exhibited in this case, to which the term "Stokes-Adams syndrome" is more or less applicable, were passed in review.—Dr. Alfred R. Parsons read notes on a case of Leukæmia. The patient, a man, aged 38 years, was admitted to the Royal City of Dublin Hospital on Sept 8th, 1905, complaining of swelling in his abdomen, shortness of breath, and palpitation of the heart. The spleen extended three inches to the right of the umbilicus and as low down as the anterior superior spine of the ilium. There were practically no enlargement of the lymphatic glands and no tenderness on percussion over the long bones. A blood-count made on Sept. 21st showed red blood corpuscles 3,070,000 and white blood corpuscles 260,800 per cubic millimetre, and hæmoglobin 57 per cent. A differential count of the white corpuscles disclosed 65 per cent. of myelocytes and 20 per cent. of polynuclear neutrophiles. When the patient was discharged on March 14th the spleen had greatly diminished, the red blood corpuscles had increased to 3,900,000 and the white blood corpuscles had fallen to 9000 per cubic millimetre. The myelocytes were present in only 8 per cent. of the total leucocytes. The treatment consisted of arsenic, iron, phosphorus, and the x rays. The dermatitis resulting from the x ray treatment gave rise to no inconvenience.—Dr. E. J. M. Watson said that he believed that a gland after prolonged exposure to the x rays would become fibrous.

ULSTER MEDICAL SOCIETY.—A meeting of this society was held on April 5th, Dr. W. Calwell, the President, being in the chair.—Dr. Cecil E. Shaw showed a patient suffering from a Growth in the Nose and Orbit and illustrating the use of transillumination.—Professor T. Sinclair described Three Cases of Successful Nephrectomy (in two there was a tumour, the third was a large tuberculous kidney).—Dr. H. L. McKisack read a paper on Albuminuria. Two main groups of conditions were pointed out in which albumin was found in the urine—viz., those in which the urine arrived in the urinary passages free from albumin and those in which albumin was transferred into the urinary passages during the process of excretion of the fluid. The former condition was found in conditions giving rise to pyuria or to hæmaturia, and might also be due to the admixture of non-urinary discharges; while the latter comprised (1) functional or physiological albuminuria, of which a variety of forms was recognised—e.g., cyclical or paroxysmal albuminuria, albuminuria of adolescents, postural albuminuria, dietetic albuminuria, albuminuria due to excessive exercise, heat or cold, &c. 2. Pathological albuminuria without definite kidney lesion: (*a*) febrile albuminuria; (*b*) albuminuria from morbid blood states; and (*c*) albuminuria from nervous diseases. 3. Pathological albuminuria with definite kidney lesions: (*a*) congestion of the kidneys; (*b*) acute and chronic nephritis (Bright's disease); (*c*) chronic arterial renal sclerosis (small red kidney); and (*d*) lardaceous disease of the kidneys. The nature of the process whereby proteids were transferred from the blood to the urinary passages was then considered; it was pointed out that many authors now regard physiological albuminuria as a result of changes in the blood and renal blood-vessels rather than in the epithelium lining the urinary passages and Wright's work and opinions on this subject were referred to. Against this view of the nature of physiological albuminuria Dr. McKisack adduced arguments in favour of the opinion that albuminuria of renal origin was the result of some change in the epithelial lining of the urinary passages. In physiological and other transient forms of albuminuria this change probably caused no serious or permanent injury to the organ and might be regarded as analogous to catarrhal processes in other less vital mucous-lined tracts. Such a condition would denote a vulnerability of the organ which would be a serious consideration in forming a prognosis. It was stated that in all forms of Bright's disease, once the disease was established, the quantity of albumin in the urine was considerable—that was, assuming that the small red kidney was excluded from the group, this disease being probably degeneration of arterial origin and not a nephritis.—In the discussion which ensued the following took part: Mr. A. B. Mitchell, Mr. A. Fullerton, Professor Sinclair, the President, and Dr. T. Houston.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 5th, Dr. A. Newsholme, the President, being in the chair.—Dr. D. G. Hall showed a case of Locomotor Ataxy with Advanced Optic Atrophy and also Aortic Regurgitation of Syphilitic Origin. The optic atrophy had begun about seven years after the attack of syphilis and the ataxy had come on later.—Dr. Walter Broadbent showed a Phthisical Woman in fair condition with a Pneumothorax localised below the third rib on the left side displacing the heart completely to the right of the sternum. The history pointed to a not very sudden onset two years before. He also demonstrated Dr. Rosenau's Apparatus for emptying and inflating the stomach.—Mr. T. H. Ionides showed a specimen of Siamese Twins which he had delivered dead without serious difficulty. They possessed one heart, one liver, and four kidneys.—Dr. F. G. Bushnell showed specimens of Bilharzia Worms and also numerous Ova obtained from the bladder of a soldier.—Dr. R. Sanderson opened a discussion on the Fall of the Birth-rate in England and its Significance. He drew largely from the paper by Dr. Newsholme and Dr. T. C. H. Stevenson on Fertility and Corrected Birth-rates. Taking the birth-rates corrected according to the number of married women of child-bearing age in European countries Sweden had proved the steadiest country; giving that country a standard of merit of 100, in 1881 22 countries had a standard above 100, but Paris was as low as 65. In 1903 only three countries—Ireland, Austria, and Italy—remained above the 100 standard, and this was attributed to the influence of the Roman Catholic religion, which absolutely prohibited prevention of conception. Brighton's figure in 1881 was 83·5 and that of Sussex 93·4, but in 1903 Brighton had sunk to 66·9 and Sussex to 69 2, illustrating the invariable rule that urban districts led the way in the decreased birth-rate and were later followed by the neighbouring rural districts. He attributed the decline of the birth-rate to the ambition of the parents to give their children a good start in life, which had been rendered so difficult by the increased competition and the expense of education. He thought that medical men ought to prohibit conception in cases of deformity, insanity, and some hereditary diseases, and if necessary in these cases might give hints as to the prevention of conception, but in all other cases no assistance should be given by medical men.—The discussion was continued by Mr. Ionides, Dr. A. Scott, Dr. E. Hobhouse, Dr. R. J. Ryle, Dr. Broadbent, Dr. L. A. Parry, Mr. H. H. Taylor, Dr. J. F. Gordon Dill, Mr. T. J. Verrall, and was ably summed up by the President.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 4th.—Mr. R. G. Hogarth showed a case of Fractured Humerus with resulting

Musculo-spiral Paralysis. There had been a good recovery four months after operation.—Dr. W. R. Smith showed a patient with a Primary Chancre on the Lip.—Dr. F. H. Jacob showed a case of Ophthalmoplegia.—Mr. R. C. Chicken showed the following pathological specimens: (1) Hæmatosalpinx from a case of Pelvic Hæmatocele previously to Tubal Abortion; (2) Hæmatosalpinx from a case of Pelvic Hæmatocele during Tubal Abortion; (3) Ovary and Cyst from a case of Pelvic Hæmatocele due to Ruptured Hæmatosalpinx; (4) Hydrosalpinx; (5) Rectum removed by Kraske's operation for Carcinoma; and (6) Three Thickened Internal Alar Ligaments from so-called cases of "split semilunar cartilage."—Mr. Chicken also read a short paper entitled "A few Notes on Pelvic Hæmatocele."—Mr. Hogarth read a paper on the Causation, Diagnosis, and Treatment of Intussusception, based on a large number of cases on which he had operated during recent years. After drawing attention to the usual forms and giving notes of cases he described two cases in which the appendix vermiformis seemed to be the cause and formed (inverted) the apex of the intussusception. This was a condition which up to now had been overlooked or not recognised. The diagnosis from other conditions was fully discussed and the importance was pointed out of an early diagnosis before the occurrence of blood and mucus in the stools.—Dr. W. Hunter, Mr. W. Morley Willis, Dr. C. H. Cattle, Dr. Jacob, Dr. Thomson Henderson, Mr. Chicken, and others discussed the paper.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on April 6th, Mr. W. Campbell M'Donnell, the President, being in the chair.—Dr. H. P. Miller gave a demonstration of the following eye cases: 1. Markedly Opaque Nerve Fibres. 2. Old Trachoma which had been under treatment 12 months but was now nearly well. 3. Congenital Cataract with good vision after needling; the margin of the lens capsule could be seen. 4. Congenital Glaucoma, with deep anterior chambers. The eyes were enlarged and the cornea bulging. 5. Glaucoma of the Right Eye, with deep anterior chamber and lenticular opacities. The tension was markedly plus and the vision nil. 6. Old Iritis, showing irregular pupil and atrophied iris. The eye was soft; the tension was minus and the vision nil. 7. Interstitial Keratitis, Cyclitis, and Keratitis Punctata. 8. Old Iritis, Cyclitis, and Episcleritis, for which iridectomy had been performed. 9. Adherent Leukoma from Corneal Ulcer. There was prolapse of the iris and the pupil was displaced from the adherent iris. 10. Left Corneal Ulcer, showing spots of infiltration in the cornea and deep anterior chamber. 11. Xerosis of Conjunctiva. 12. Tremulous Iris and Dislocation of Lens.—The following office-bearers were elected for the session 1906–07: President: Dr. J. R. T. Conner. Honorary secretary: Dr. David Ross. Honorary treasurer and curator: Dr. B. G. Morison. Council: Dr. W. Langdon Brown, Dr. Leslie Durno, Mr. G. Angus Hunt, Mr. W. Campbell M'Donnell, and Dr. J. S. Risien Russell.

NEWCASTLE-UPON-TYNE CLINICAL SOCIETY.—A meeting of this society was held on April 12th.—The following cases were shown:—Dr. J. Hudson: Syringomyelia.—Dr. D. W. Patterson: Cases of Lupus Erythematosus, Ichthyosis, Dermatitis Herpetiformis, and Morphœa, and illustrations of the Therapeutic Effects of X Rays in Dermatology.—Mr. T. G. Ouston: Thyrotomy for Papilloma three years after operation; case after Astragalectomy.—Mr. J. Clay: Tertiary Syphilitic Lesions; Stricture treated by External Urethrotomy; specimen of Tubal Abortion.—Mr. J. W. Leech: A series of cases of Malignant Disease—Specific Glossitis, a patient after operation for Thyroglossal Dermoid and varieties of Gall-stones.—The following officers were elected for next session, 1906–07.—President: Mr. W. H. Vickery. Vice-President: Mr. T. G. Ouston. Treasurer: Mr. G. G. Turner. Secretary: Mr. J. W. Leech. Committee: Mr. G. Foggin, Mr. J. Clay, Mr. W. Martin, Dr. M. N. Maclay, Dr. J. S. McCraken, Mr. T. H. Livingstone, Dr. R. A. Bolam, Dr. T. Beattie, Dr. W. Hardcastle, Dr. D. W. Patterson, Mr. H. B. Angus, and Dr. R. S. Hindmarch.

HUNTERIAN SOCIETY.—A meeting of this society was held on April 11th, Mr. John Poland being in the chair.—Mr. Jonathan Hutchinson opened a discussion on Syphilis and gave a most interesting account of the history of the disease and its treatment, and suggested some points which required elucidation.—Dr. G. H. Savage spoke on the Relation of Syphilis to Insanity.—Dr. J. Purves Stewart spoke on the Relation of Syphilis to some Diseases of the Central Nervous System and discussed the diagnosis of tabes and general paralysis of the insane by examination of the cerebro-spinal fluid.—Dr. W. Hale White spoke on Visceral Syphilis, illustrating his remarks by exhibition of museum specimens.—Mr. T. P. Beddoes also spoke.

SOUTH-WEST LONDON MEDICAL SOCIETY.—A meeting of this society was held on April 11th.—The following cases and specimens were shown. Dr. H. Campbell Thomson: Cerebellar Tumour.—Mr. P. Macleod Yearsley: Specimens of Neoplasms of the External Ear.—Mr. C. Ryall: A case of Ileo-colostomy; specimen of Malignant Disease of the Rectum; and specimen of the Stomach and Intestine of an Infant with Congenital Absence of the Small Intestine.—Dr. S. Verdon Roe: Salivary Calculus.—Mr. E. J. Pritchard: A case of Absolute Loss of Voice for over a year.—Dr. J. T. Thyne: An Armless and Legless Man; and a case of Nævus of the Hand.—Dr. D. Kernohan: A case of Pernicious Anæmia.

Reviews and Notices of Books.

Criminal Statistics, England and Wales, 1904: Statistics relating to Criminal Proceedings, Police, Coroners, Prisons, Reformatory and Industrial Schools, and Criminal Lunatics, for the Year 1904. Edited by W. J. FARRANT. London: Wyman and Sons, Limited. Pp. 204. Price 1*s.* 7*d.*

AMONGST the official publications in this country that are of special interest to the student of sociology, the volume of criminal statistics which is issued annually by the Home Office may rank as one of the most important. The information which it embodies, referring, as it does, to the police returns of the amount and distribution of crime, to the proceedings of the several courts taking cognisance of criminal offences, to coroners' inquests, and to the populations of prisons, reformatories, and criminal lunatic asylums, presents a series of views of different and mutually illuminating aspects of the movement of crime which, taken together, form a complete guide to this department of *Moralstatistik*.

In the latest volume, which deals with the year 1904, the annual tables are arranged, except for some minor details, in the form adopted when the statistics were revised in 1892. As in previous issues they are preceded by a series of comparative tables illustrating the periodic variations in the amount of crime absolutely and relatively to population and the differences in its regional distribution. The general introduction, which is contributed by the editor, is confined this year to a summary of the principal figures.

In 1904 crime as a whole increased. The figures for the year, compared with the corresponding figures for 1903 and with the annual average for the five years 1900–04, show a distinct rise in the total volume of criminality, whether measured by the number of indictable offences reported to the police, by the number of persons tried or the number of persons convicted of such offences, or by the numbers of the prison population. The number of persons tried for indictable crimes, which is usually taken as the surest index of the movement of criminality, amounted in 1904 to 59,960, or 178 per 100,000 of population, the proportion in the previous year being 175 and in the quinquennial period 1900–04, 172 per 100,000. It thus appears that the growth of crime, which set in after 1899, following on a long period of steady decline, has not yet ceased. This way of stating the matter is, however, misleading, for it fails to take account of the fact that the term crime does not indicate any single and definite mode of conduct but is merely a general label for a heterogeneous collection of acts and omissions that have no common character save that of illegality. In reality, of course, the conditions that give rise to the several forms of

serious delinquency are very often not only different but opposed, so that an increase in the frequency of one sort of offence may be accompanied by a decrease in another and an increase in the total amount of crime may mean no more than a rise in one single category which by reason of its numerical importance can exercise a dominant influence on the figures. This is, in fact, what it generally does mean and it is what it meant in 1904, when the increase was wholly in offences of acquisitiveness, which, as they constitute about nine-tenths of the total amount of indictable crimes, are decisive of the general statistical movement. Crimes of violence, on the other hand, and crimes against morals both declined in frequency, the former in a very marked degree. The increase in crimes of acquisitiveness, which was mainly in petty larceny, is presumably to be connected with the industrial depression in 1904; in that year, it will be recalled, the trade union index of unemployment stood at 6·5 per cent., a figure higher than any reached during the preceding decade. The crimes usually committed by habitual criminals—burglary, housebreaking, and receiving—showed only a relatively slight increase, much less than in the immediately preceding years. This is a very gratifying fact, particularly if, as seems probable, it is due, at all events in part, to the recent improvements in the methods of dealing with juvenile and juvenile-adult offenders from whom the ranks of the professional criminals are recruited.

The table showing the incidence of drunkenness, of suicide, and of the different varieties of crime in the several counties during the five years 1900–04 is of special interest. Its figures agree very fairly with those in the corresponding tables published in earlier volumes of the series and this fact is, of course, a strong argument of their correctness. The most obvious inference to be drawn from them is the close relationship of the different phenomena to the social and industrial conditions of the population. The agricultural counties, for instance, are relatively free from drunkenness, and though to a less marked extent from crimes of violence and of acquisitiveness and from suicide, on the other hand, many of them show high rates for crimes against morals. The mining counties, as usual, are the most drunken and they also show a notable prevalence of crimes of acquisitiveness, but with the exception of Glamorgan, which has a bad pre-eminence in every sort of crime, they have low rates for offences of violence and of lust.

Passing now to the consideration of non-indictable offences, we find that as compared with the previous year they show a slight absolute increase, less, however, than would correspond with the growth of population, and confined to quasi-criminal offences, such as infringements of by-laws and the like, and to minor offences of acquisitiveness. Assaults, on the other hand, have declined considerably. This fact, taken in connexion with the falling off in the number of serious offences of violence, shows that the improvement in manners to which the statistics of recent years have borne testimony continues to progress. Less violence and more dishonesty may, in fact, be taken as the outstanding characteristic of the present movement of crime.

Of other matters dealt with in the criminal tables we may note that the proportion of persons who had previous convictions (65 per cent.) was higher than in any of the 11 previous years for which figures are available; this is apparently the result of the extension of the method of identification by finger-prints. The total number of coroners' inquests held in 1904 was 36,269 (or 66 per 1000 deaths), this being near the average figure for the past five years. Excluding one case of justifiable homicide and 16 judicial executions, there were 4883 deaths attributed to criminal violence or neglect. Of these, 3327 were cases of suicide, this being a decrease of 4 per cent. on the figures for 1903. Attempts to commit suicide, it may be remarked, were also less frequent, the number for the year being 2374, as against 2399 in 1903. A supplementary table, framed at the instance of the Coroners' Society, gives particulars of the inquests held on persons who died from burns and scalds; the main facts brought out by it are that about a quarter of the deaths from burns are due to the ignition of flannelette, and that the majority of accidents of this sort occur, as might be anticipated, in the slum districts of the big towns, Liverpool being at the top of the list.

With regard to proceedings in connexion with inebriates the figures for the year show an increase in the number of committals to certified reformatories. The "black list" seems to be in the way to become a dead letter, the number of orders made in respect of it showing a shrinkage to about one-third of the figure for 1903. During the year 235 criminal lunatics were received into asylums; of these, 107 were certified insane before trial or were found insane by verdict of jury and 128 were certified while serving sentences in prison. It is worthy of remark that amongst the criminal lunatics who had committed indictable offences the existence of insanity was established before trial in no less than 95 per cent. of those accused of homicidal crimes but only in 42 per cent. of those tried for other offences. This fact, which is a regular feature of the returns, suggests that there is need of fuller medical scrutiny of the mental state in cases of non-homicidal crime.

Viewed as a whole, the statistics leave very little to be desired, whether as regards the amount of the information they contain or the form in which it is presented. On a few points, however, it might be possible to furnish fuller details which, without appreciably adding to the labour of compilation, would greatly enhance the value of the publication to persons interested in the study of the bio-social aspects of crime. In the tables, for instance, dealing with age and sex it would be a manifest advantage if, in the case of certain offences, information could be given with reference to accused as well as to convicted prisoners. This remark applies particularly to attempts to commit suicide, which, though very frequent, are generally viewed with leniency and are sent for trial only in about 8 per cent. of the cases. As a result, save in this trivial minority of instances, we get hardly any information on a matter which, intrinsically and in connexion with alcoholism and with suicide, is of very great interest. In sexual offences, again, it would add very much to the value of the statistics if cases of rape and indecent assault on adults were distinguished from similar offences committed on children; they form two distinct categories of crime which differ in psychological import and are generally connected with different organic and therefore different social and industrial conditions. In the same way the information with reference to homicidal offences might be expanded so as to show the number of cases in which the victims are related by blood or marriage to the offenders. This has been done in the Scottish tables. Further, the table showing the frequency of recidivism in the several classes of crimes would be much more instructive if it indicated in what proportion of cases the previous convictions recorded were for similar offences. Finally, it may be pointed out that the use of a system of age-classification different from that followed in the returns of the Registrar-General is a source of considerable inconvenience in investigating the relation of crime to certain other bio-social facts. That we may not, however, close these remarks on a note of depreciation it is proper to add that such defects as we have just commented on are only conspicuous by reason of the general excellence of the work which they disfigure.

Practice of Medicine: a Manual for Students and Practitioners. By HUGHES DAYTON, M.D. London: Hodder and Stoughton. 1906. Pp. 324. Price 4s. net.

THIS little volume is apparently one of the Medical Epitome Series, some of which were reviewed in these columns on Feb. 3rd (p. 302). The series is edited by Dr.

Victor Cox Pedersen who holds many appointments in New York and who states in his preface that it is intended that the series, as a whole, should embrace the entire realm of medicine and that in the individual volumes the maximum of information in letterpress and engravings should be given for a minimum price. This volume contains no engravings, hence the letterpress must be more costly than in other illustrated volumes of the series. There is no list of the other volumes included in that at present under consideration but one on Diseases of the Nose and Throat is mentioned in the author's preface, while another on Diseases of the Nervous System is referred to in the section on Tuberculosis. The classification of Osler has been followed closely throughout and the material has been arranged systematically under each disease in the familiar form of definition, etiology, pathology, symptoms, complications and sequelæ, diagnosis, prognosis, and treatment. The marvel is that within the space so much information is compressed. It is stated that the work is intended for "hasty reference" by practitioners, as well as for the use of students. For hasty reference it appears to be admirable; for the use of students revising in a hurry before an examination it may be of service, but we would warn all others that the attempt to study medicine in this condensed form will be speedily provocative of a kind of mental shortness of breath. The book is obviously a skilful compression of one or more larger works and the facts are accurate and represent recent advances but, perhaps because of its Transatlantic origin, it inevitably suggests the idea of the quick luncheons which we owe to the same source and it is very filling at the price. Personally we prefer a more leisurely meal.

The Physiology and Therapeutics of the Harrogate Waters, Baths, and Climate Applied to the Treatment of Chronic Disease. By WILLIAM BAIN, M.D. Durh., and WILFRID EDGECOMBE, M.D. Lond. London: Longmans, Green, and Co. 1905. Pp. 300 Price 7*s.* 6*d.* net.

AN attempt is here made to supply evidence showing that the therapeutics of the local waters and baths rest on a secure foundation comparable to that of drug therapeutics. Separate sections are devoted to the waters, baths, and climate, and in each section members of the medical profession, for whom the book has been written, will find much that is instructive. In the first section upon the pharmacology and therapeutics of the natural mineral waters the authors acknowledge their indebtedness to Professor T. G. Brodie for many helpful suggestions and it will be remembered that the same writer contributed the physiological sections in the text-book of medical practice edited by Dr Bain and favourably reviewed in these columns.

Many will be surprised to learn that Harrogate possesses no less than 80 springs of different chemical constitution and that about 16 of these are used internally, the remainder being devoted to bathing purposes. In contrast to some of the continental spas, it is openly admitted that in their natural state the waters are athermal and that they are heated artificially. Speaking in general terms, a saline constituent is common to all, together with other compounds either of sulphur or of iron. This permits of their classification into two divisions: (1) saline-sulphur waters; and (2) saline-chalybeate waters, each again being subdivided into strong, medium, or mild according to the amount of solids present. Considering the waters individually, the first place is assigned to the Old Sulphur Spring which is regarded as being unquestionably the most valuable water which Harrogate possesses. The authors describe its pharmacology and give tables showing its influence upon the excretion of urea, of uric acid, and of sulphates. The effects on the blood and upon the function of the liver are also demonstrated by charts and tables which represent the results of many experimental researches. The authors state that they believe that the value of the water would be enhanced if it contained less hydrogen sulphide, and without venturing to question this belief many for whom this water has been prescribed will agree that it would be more readily taken if this ingredient could be reduced or if its presence could be rendered less aggressively obvious. Considering the importance of the water the account of its therapeutic action appears somewhat meagre and unconvincing; there is not much guidance in the statement that "the water is prescribed with varying degrees of success" in seven or eight conditions which are here enumerated. The composition of each of the other mineral waters is considered in turn and to each are assigned a paragraph on pharmacology and one on therapeutics; frequently a chemical analysis of some 20 years ago is followed by a skeleton analysis of recent date and thus an opportunity is afforded of judging the slight variations in composition which have occurred during the interval. The classification of the baths of Harrogate is sufficient to demonstrate the vigour with which the supply has been made to meet the demand: there are thermal baths, thermo-chemical baths, thermo-mechanical baths, thermo-electric baths, and electric baths, and the number included under each of these headings brings up the total to a high figure. The thermo-chemical baths are, of course, those which may be regarded as belonging specially to Harrogate; it is, however, useful to have in these pages a general account of the physiological action of baths and of their therapeutic uses.

Special pleading is to be expected so soon as the climate of a health resort is approached. We do not for one moment doubt the accuracy of the figures in all the tables relating to the meteorological data (they have been supplied by the meteorologist to the Harrogate corporation) but it is impossible not to feel that the districts and towns selected for purposes of comparison seem to have been chosen rather arbitrarily. They vary in the different tables and Harrogate nearly always appears to advantage under this system of comparison.

The fourth section gives an interesting analysis of cases sent to Harrogate for spa treatment; conditions termed "gout and goutiness" head the list, and they are closely followed by skin diseases of undefined nature, while forms of rheumatism, diseases of the liver, neurasthenia, and diseases of the stomach also account for considerable numbers of visitors. This list in round numbers accounts for four-sevenths of the visitors, the remaining three-sevenths coming with no less than 41 different types of disease. This concluding section on the treatment of chronic disease is necessarily rather brief, since the authors have rigorously excluded reference to individual cases but none the less it opens up vistas of hope for numbers who are depressed by the torments of chronic maladies. The authors repeatedly remark that each case should be treated on its merits and this wise reserve is far more likely to be productive of benefit than if they had been unduly optimistic. They are to be congratulated upon the success with which they have vindicated the favourable attitude which they maintain towards the spa treatment of chronic disease.

LIBRARY TABLE.

De l'Emploi des Alcaloïdes en Solution Huileuse. (*On the Employment of Alkaloids in Oily Solution.*) By Dr. SCRINI. Paris: Vigot Frères. 1906. Pp. 108. Price Fr. 2.50.—It is already well known to ophthalmic surgeons in this country that oily solutions of the alkaloids possess certain advantages over the aqueous solutions as collyria but they have not received general adoption except perhaps in the case of eserine. In this monograph Dr. Scrini sets forth in detail the reasons which have led him to abandon all other forms of collyria, especially aqueous solutions and ointments, in

favour of the oily solutions of the alkaloids. He rightly points out in the first place that aqueous collyria are not easy to administer satisfactorily. Their instillation often gives rise to profuse lacrymation and blepharospasm, thereby rendering the local effect of the application very uncertain and often abortive. At the same time, excess of the lotion may be easily carried over the cheek into the mouth, or it may reach the œsophagus through the lacrymal duct and pharynx and set up symptoms of poisoning by absorption. All these difficulties are avoided by the use of the oily collyria. They can be instilled into the eye accurately drop by drop without exciting any lacrymation or spasm, and the drops are quickly diffused over the surface of the eyeball, producing the desired effect with precision and rapidity. By comparative experiments on animals Dr. Scrini was able to show, by dropping an aqueous solution into one eye and an oily solution into the other, that the effect of the latter appeared more rapidly and lasted longer. Oily solutions have the further great advantage that they remain sterile, whereas the aqueous collyria of the alkaloids become easily infected with micro-organisms. Moreover, eserine readily decomposes in water, forming an irritating product known as *rubriserine* on account of the rose-red colour which it gives to the solution. No such decomposition takes place in oil. Ointments share with the oily collyria many of the advantages over aqueous solutions but they are liable to set up irritation on account of the fatty acids of decomposition which they may contain. Of the many oils which may be employed Dr. Scrini gives the preference to olive oil. Castor oil and almond oil irritate the conjunctiva and hydrocarbon oils do not dissolve the alkaloids in sufficient strength. In all cases the alkaloid base must be used. The oil should be first shaken with alcohol, decanted, and sterilised by heating to 120° C. Oily collyria have not received much favour in this country on account of the natural objection to the use of oily materials and their liability to soil the clothing of the patient. But there is also a serious objection to the use of homatropine in oily solution, as an oily film is formed over the cornea, which persists for some time and renders retinoscopic observations very difficult. The employment of a fatty or oily menstruum or vehicle for the application of remedial agents to the eye is no new thing. Perhaps the most commonly used medicament that is on the table of every ophthalmic surgeon is the binoxide of mercury and this is almost always made up with vaseline or with lard or glycerine or lanoline. Iodoform, as well as the various mydriatics and myotics, are not infrequently employed in the same manner. The chief objection to oil is its liability to become rancid owing to the formation by oxidation of the fatty acids. In Italy and France, where perfectly fresh olive oil can easily be obtained, this objection may not hold, but in this country such oil is not procurable and pomades or ointments so made would prove both irritating and painful to eyes already inflamed.

International Clinics. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia. Vol. IV., Fourteenth Series. London and Philadelphia: J. B. Lippincott Company. 1905. Pp. 314.—A vigorous protest against the excessive use of drugs in the treatment of chronic diseases, with reference to medicinal intoxication, comes from Dr. George Hayem, and his conclusions in favour of "hygienic modifiers" when specific or serotherapeutic agents are useless must be regarded as the outcome of a certain disappointment with the results of pure empiricism; but is he not flogging a dead horse? There are few who would in these days admit that their treatment is empirical, though probably many share with him the distrust of the excessive use of drugs, a habit which is to a great extent to be laid at the doors of those of the public who assume the responsibility of prescribing for themselves. Dr. Adolphe Javal of Paris deals with the indications for the dechloridation treatment in an article which perplexes by its combination of French and American spelling of many chemical and technical terms. The value of radium in the treatment of lupus, rodent ulcer, and epithelioma is illustrated by numerous figures and it is claimed that good results have been obtained with it, though it is admitted that sufficient time has not elapsed to permit of claims for a permanent cure. Professor Senator deals with the clinical significance of albumosuria and maintains that if albuminous urine is boiled for a long time albumoses may be formed from the albumin. This volume also includes interesting lectures upon functional heart murmurs, upon several surgical subjects, and upon amœbic infection of the intestine and liver.

First Aid to the Injured and Sick. By F. J. WARWICK, B.A., M.B. Cantab., M.R.C.S. Eng., late Captain R.A.M.C., and A. C. TUNSTALL, M.D., F.R.C.S. Edin. Bristol: John Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1906. Pp. 242. Price, paper, 1*s.*; cloth, 2*s.*—We have received a copy of the fourth edition of this useful little handbook, which contains all the information necessary for the instruction of an advanced ambulance class. The text of this edition has been thoroughly revised by the authors, both of whom are experienced ambulance lecturers, and illustrations have been added to the chapters on Digestion and Excretion which must help to explain to first-aid students subjects which they necessarily find very difficult. We have nothing but praise for an excellent and practical little manual, but the authors might take an early opportunity of giving the artist who drew their ornamental cover a hint or two on anatomy.

Materia Medica and Therapeutics. By J. MITCHELL BRUCE, M.A., LL.D. Aberd., M.D. Lond. London: Cassell and Company. 1905. Pp. 632. Price 7*s.* 6*d.*—This appears to be the seventh edition of this text-book, or the sixth occasion on which it has been revised; at any rate, on the title-page it is indicated that it is the forty-seventh thousand and accordingly the task of the reviewer is light, since the book has made its mark and needs no words of commendation. There are, however, some new features which deserve mention. The size has been increased owing to the inclusion of an account of the materia medica and therapeutics of the drugs in the Indian and Colonial Addendum to the British Pharmacopœia and to the introduction of greater detail respecting the chemical and pharmaceutical relations of the individual drugs. The Indian and Colonial additions are grouped together and placed in alphabetical order, an arrangement which, it may be hoped, will facilitate certain omissions which appear to be desirable, to judge from the small amount of information respecting their actions and uses. On two pages in this section (p. 444 and p. 445) the omission of the line ordinarily used between paragraphs relating to different drugs may give rise to momentary confusion of thought. In the parts relating to the drugs employed in this country space has been found for the inclusion of many new remedies which are not official, such as urotropine, trional, veronal, aspirin, and citarin. The relative importance of these substances is not to be gauged by the relative amount of space allotted to them. Mention has already been made of the greater attention to the chemical relations in this edition; this is necessarily shown to greatest advantage in connexion with the carbon compounds, but it may be regretted that the author has not adopted a consistent plan; as examples may be cited the representations of the composition of sulphonal and of phenazonum which occur on the same page. In spite of the minor blemishes referred to there can be no doubt that this book merits the favour with which it has been received by successive generations of students and it may be further stated

that infinite pains have been taken to make the book a safe guide for students and a convenient work of reference for practitioners. It is 22 years since the publication of the first edition and yet, from the freshness of style and from the assimilation of recent work, the book still presents an air of youthful vigour.

JOURNALS AND MAGAZINES.

The Bristol Medico-Chirurgical Journal.—The March number opens with a full and interesting paper on Anti-tuberculous Vaccines and Sera, by Dr. J. M. Fortescue-Brickdale. He notes that about 20 of such specific remedies have been prepared and tried, but the results are on the whole small. Tuberculin is, however, regaining some measure of favour and Marmorek's serum has given some encouraging results. Dr. J. J. S. Lucas deals with the Prognosis of Pulmonary Tuberculosis and Dr. P. Watson Williams with Defective Nasal Respiration. Dr. J. R. Charles discusses the Effects of Fright in Medicine and cases of Acute Yellow Atrophy of the Liver are recorded by Dr. F. H. Edgeworth and by Dr. Bertram M. H. Rogers.

The Edinburgh Medical Journal (April).—Mr. H. Alexis Thomson writes an interesting article on Brodie's Abscess of Bone; a table of cases shows that the condition occurs in the head of the tibia in more than one-third of all cases. The bacterium at work is generally streptococcus aureus, but streptococcus albus and bacillus typhosus also occur. Another surgical paper of importance is that by Mr. Alexander Miles on Epigastric Hernia (incidentally we may be permitted to wonder whether the spelling ziphisternum here occurring is a misprint or the latest Americanism). Dr. A. Haig once more affirms his belief in the toxicity of uric acid and its importance in gout, as well as in the scheme of diet which he has elaborated to combat the poison. A case of Leukanæmia is recorded by Dr. F. G. Bushnell and Dr. Donald G. Hall and one of Keratosis of the Larynx by Mr. A. Logan Turner.

The Scottish Medical and Surgical Journal (April).—This number opens with the Presidential Address delivered by Mr. George Rose to the Aberdeen Medico-Chirurgical Society on Acute Disease of Bone in Children. Mr. Charles W. Cathcart writes on the Treatment of Acute Inflammation by Bier's method of passive congestion, attributing part at least of the good effects produced to changes in arterial blood-pressure and claiming that this method cures early stages of inflammation before suppuration has developed and limits this process when it has occurred. Dr. W. G. Aitchison Robertson writes in praise of Uhlenhuth's precipitin test for blood-stains, and a special article is contributed by Dr. Edwin Bramwell on the Colony System of Treating Epileptics.

Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B., F.R.S.; D. J. CUNNINGHAM, M.D., F.R.S.; G. S. HUNTINGTON, M.D.; A. MACALISTER, F.R.S.; and J. G. M'KENDRICK, F.R.S. Vol. XL. Third Series, Vol. I., Part 3. With Plates and Illustrations in the Text. London: Charles Griffin and Company. 1906. Pp. 115. Published quarterly at 6s. each part.—1. The first article in this number is on the Surgical Anatomy of the Prostate, by J. W. Thomson Walker, F.R.C.S. Eng. The author gives a careful description of the sheath of the prostate or the fascia in which the prostate lies as an egg fills an egg cup, except at the apex, where the fascia becomes incorporated with the striped muscle surrounding the urethra. The relation of the prostate to the base of the bladder is then given, with drawings showing the appearances presented on section. The striped muscle of the prostate, the prostatic plexus of veins, the prostatic urethra, the arrangement of the gland tissue, and the seminal vesicles are successively considered and are illustrated by excellent drawings. 2. On the Anatomy of the Calamus Region in the Human Bulb, with an account of a hitherto undescribed "Nucleus Postremus," by J. T. Wilson, professor of anatomy in the University of Sydney, N.S.W. This article is a valuable contribution, with accurate illustrations, to our knowledge of a rather neglected portion of cerebral anatomy. 3. Notes on the Coronal Suture, by F. G. Parsons. 4. A Note on the Topographical Anatomy of the Caput Gyri Hippocampi, by Johnson Symington, F.R.S. 5. The Vermiform Appendix of Man and the Structural Changes therein Coincident with Age, by Richard J. A. Berry, F.R.S. Edin., and L. A. H. Lack, M.B. Edin., an able contribution to this subject which we have fully considered in another column. 6. Experimental Contribution to a Theory of Thinking, by Henry J. Watt, M.A., Ph.D., Carnegie Fellow. In these experiments several hundred nouns of common occurrence were printed in big type on cards and were shown to the observing subject one at a time by means of Dr. Ach's automatic card changer; a metal plate which covered the card sprang up when a string was pulled and by so doing closed an electric current which flowed through a Hipp chronoscope and a Cattell's speaking-tube. The chronoscope, therefore, marked the time which passed from the appearance of the printed word until the first vibrations from the subject's voice broke the current in the speaking-tube. This constituted the measure of the reaction and formed, with a full account of all the reproducible experiences of the observing subject which were at once written down, the experimental data of the thesis. Definite tasks were given in each experiment which the subject had to accomplish in the reaction, such as the classification of the printed word, the naming of an example of it, or of its parts, or of some other animal, plant or object in the same group. The results, too long to be here abstracted, are interesting and deserve the attention of psychologists. 7. On Some Minor Markings on Bones, by J. Ernest Frazer, F.R.C.S. Eng. 8. On the Presence of Elastic Fibres in the Cornua, by J. Hamilton M'Ilroy, M.B., B.Sc., Carnegie research scholar. 9. A report (sixteenth) on Recent Teratological Literature, by Bertram C. A. Windle, M.D. Dub., F.R.S. 10. An Unusual Displacement of the Heart, by David Waterston, M.A., M.D. Edin. The displacement was met with in a teal (Querquedula).

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 19th, 1828.

EPIGRAM

*On the Patient who suddenly decamped from Guy's Hospital.**

When Cooper's *newey* cut for stone,
His toils were long and heavy;
This patient quicker parts has shown,
He *soon out* Cooper's *newey*.[1]

[1] The accusation of malpraxis against Mr. Bransby Cooper made in THE LANCET, and on which this epigram was founded, resulted in his bringing a well-known libel action against the Editor.

THE official Asses of Guy's Hospital, have posted the following sensible notice at the Lodge. If these worthies are really desirous of a contest with the Press, let them come on—

"And damn'd be he that first cries, hold, enough.".

Guy's Hospital, April 8, 1828.

Order,—That, in consequence of untrue and unprofessional statements, relating to this Hospital, having appeared in THE LANCET, no person who reports for, or is in any way connected with that publication, shall be at liberty to attend the practice, or the schools of this Hospital.

JAMES BROWELL, Steward.

* See LANCET of last week, p. 49.

THE LANCET.

LONDON: SATURDAY, APRIL 21, 1906.

Hospital Management.

THE essay on the Economical Management of an Efficient Voluntary Hospital, by Mr. G. H. HAMILTON, to which the prize of £100 and a silver cup offered by Mr. E. SPEYER has been awarded, and the essay upon the same subject by Mr. E. W. MORRIS, which was placed next in order of merit and for which its author received a special prize of £50, have been published in pamphlet form at the modest price of 6*d.* and, taken together, may be assumed to contain all that two hospital secretaries of great experience have thought it necessary to say upon the subject which has exercised their thoughts and pens. Mr. HAMILTON, we need hardly add, is secretary to the National Hospital for the Paralysed and Epileptic, which a few years ago was the scene of a successful struggle on the part of the medical staff to obtain a proper share in its management; and Mr. MORRIS is secretary to the London Hospital, which, under the skilful and energetic control of the Hon. SYDNEY HOLLAND, has for many years set an example to other institutions of like kind in the directions both of successful money-getting and of enlightened expenditure. It may be that having regard to the terms and conditions under which Mr. SPEYER'S prize was offered for competition the prize has gone to the right quarter, but if literary style counted we should be inclined to reverse the verdict of the judges and to give the first place to the essay by Mr. MORRIS. For in our opinion Mr. HAMILTON is diffuse in his treatment of the obvious and not happy in his modes of expression.

A considerable part of the ground covered by both essays is connected with hospitals merely in relation to their economical management as large residential institutions and possesses no special interest for medical readers. It is manifestly true, for example, that "boilers should be insured with a first-class boiler insurance company," and that, in relation to stores, while "economy in purchase is only one aspect of the matter economy of use is probably of greater importance still." Such observations, and several pages are occupied by them, would be as pertinent to the case of a school or college as to that of a hospital and need no special consideration from us. We may note in passing Mr. HAMILTON'S decided opinion that "a lady housekeeper should have the reception and distribution of all articles of food, linen, hardware, crockery, and cleansing materials," and, further, that this lady should be a "fully trained nurse, and, if possible, one who has been a ward sister." He believes that the success of such an arrangement would be due greatly to the fact that such an officer would have become aware of the circumstances in which, without any dishonest motive, excessive supplies of food or other articles were likely to be requisitioned; and he appears also to think, if we read between the lines, that a lady of the suggested qualifications would be less amenable than an average house steward to the possible blandishments of contractors and tradesfolk. There are probably few housekeepers, with experience in the ordinary domestic catering of private life, who will not be inclined to agree with him. The subjects of special medical interest dealt with in the essays are hardly more than two in number—namely, the share in the government of a hospital which should be allotted to the medical profession and the conditions which should regulate the admission of patients. With regard to the former of these questions, it must be remembered that Mr. HAMILTON'S predecessor in office was a gentleman who opposed strongly the demands of the medical staff of his hospital to secure a share in its management, and who desired to keep them in what was virtually the position of servants to a board of lay governors, although this interpretation was verbally denied. The question was thoroughly debated both in the press and at meetings and the complete victory of the medical staff led to the vacancy in the secretariat which Mr. HAMILTON has since filled with much credit and distinction. He may therefore be expected to advocate a system to which, in fact, he is indebted for his position; and he does so, but with the curious limitation of objecting to a scheme of promotion which might render paid medical officers in the first place members of the honorary staff and ultimately representatives of their colleagues on the board of management. They would then, he says, "become masters of other permanent officers with whom they had at one time worked as colleagues, and such a condition of affairs might easily be undesirable." He proposes as a remedy for this imaginary evil that only honorary officers of long standing should be elected to the board, apparently with the notion that they would have survived their old colleagues. We cannot but regard the objection as visionary and the remedy as worse than the evil which it is designed to prevent. An element of youth is conducive to the vigour of all administration, and the promotion of colleagues to be superiors is an incident of daily occurrence in connexion with the public services of the country. The question is one with which Mr. MORRIS has not thought it necessary to deal and which, as far as we know, has never occasioned trouble at the London Hospital, where the staff has always furnished important elements to the board and has always been considered and consulted in relation to the introduction of changes or reforms.

With regard to the admission of patients, the views entertained by Mr. MORRIS appear to us to be both more enlightened and more accurate than those of Mr. HAMILTON. The latter gentleman defines the "primary object" of most hospitals to be "the medical and surgical relief of necessitous persons," and scarcely appears to carry his thoughts at all beyond the limitations which this definition would impose. Mr. MORRIS declares that "some" hospitals (may we not say nearly all?) have a loftier aim and take a broader view. "They are not content with simply returning their patients cured or relieved. They not only attempt to cure the disease from which the patient is suffering but they wish to investigate that disease, to trace it to its cause, to discover what favours it, what

destroys it. ..... It will be one of *these* hospitals which will give to the world one of these days the discovery of the cause of cancer." With this absolute divergence of view between the two writers it is not surprising that Mr. HAMILTON says, "In a hospital with ideal management, no patient will be treated for mere clinical interest," and that he entirely omits such matters as clinical and pathological laboratories from his account of the legitimate sources of expenditure. Mr. MORRIS, on the contrary, declares that the hospitals which he puts into his higher class must have "their bacteriological laboratories, clinical laboratories, pathological laboratories, physiological laboratories, sterilising rooms, &c., and all these adjuncts to research require a large staff and expensive material." He also points out the error of regarding the work of a "cheap" hospital as equal to that of an "expensive" one because the death-rate is the same. He mentions it as "a curious fact" that the death-rate of most hospitals is about 10 per cent. of the admissions and, happily, suggests as a proper test of efficiency the condition of the other 90 per cent. five years after they have been discharged. He even goes further and points out that the hundreds of people who never have to go to a hospital at all may owe their good fortune in this respect to the work in which his hospitals of the higher class have been, and are, continually engaged. In this relation, however, neither of the two writers takes note of the value to the community of the medical school. There can be no possible question that on any given day the work of healing or of prevention accomplished by the aggregate number of practitioners who have gone out from the school of any great hospital must far exceed that which is done within the walls of the hospital itself and that, whatever may be the value of the hospital to individuals, it is the school that is of transcendent value to the community. We therefore think it a matter for regret that the narrow views of hospital utility entertained by Mr. HAMILTON in his practical essay should have been stamped with approval by the judges and we must express our absolute dissent from them. On the question of the fitness of patients for admission to hospital we obtain no effective guidance from either writer, and the recently suggested remedy for admitted evils which, it is by some contended, would be furnished by an adequate supply of properly organised "pay hospitals" did not fall perhaps within the scope of the conditions by which both essayists were bound. We should have been glad to hear their views upon this element in the hospital administration of the future, because it is obviously one upon which their duties and position would enable them to throw light, and as to which Mr. MORRIS at least must have been almost compelled to consider the recent publications of his chairman.

The Registrar-General's Annual Report.

ON the eve of going to press we have received a copy of the annual report for 1904 of the Registrar-General of England. Although its publication is somewhat belated our experience of previous issues inclines us to welcome the present volume which a very cursory perusal leads us to believe will rank as a valuable further contribution to the literature of demography. This report embodies the results of an ably conducted inquiry into the intricate causes which in recent years have produced far-reaching changes in the constitution and environment of the English people—changes by which their general welfare has been powerfully affected either for good or for evil. The present report fully sustains the high standard of those previously issued by Sir WILLIAM DUNBAR. It contains, however, sundry new features and to some of these we now propose more especially to refer. In his opening remarks the Registrar-General devotes considerable care to a scrutiny of the birth-rate which in this country, as well as in most others, is known to be falling continuously. The mutual relations of the marriage- and birth-rates, and of the latter with the death rates, are discussed with remarkable fairness and skill, and so great is the importance which is attached to this subject that twenty pages at least are devoted to its consideration. Within the space at our disposal we can do no more than indicate briefly the more important conclusions arrived at in this report. We wish, however, that its circulation could by some means be widely extended or, better still, that certain portions of it could be reproduced in a less compendious form, so that the subjects treated of might come within reach of the general reader who for the most part eschews everything of the nature of a Blue-book. In this and in other European countries variations in the marriage-rate are known to correspond to variations in economic conditions of highly complex character which cannot be considered here. The method hitherto adopted of registering variations in the rate of marriage is by stating the ratio of persons married to the population at all ages. But a more accurate result can be obtained by calculating the marriages on the unmarried and widowed portion of the population above the age of 15 years, thus dealing with that section of the people among whom alone marriages take place. Reckoned in this way the English marriage-rate has decreased progressively throughout the last 35 years, the total fall within that period being equivalent to 19 per cent. Surrey, Middlesex, and Essex are the only English counties in which the marriage-rates have increased at all. In London there has been a decrease of 21 per cent. In 14, mainly agricultural, counties the rate has fallen by from 2 to 9 per cent., whilst in the remaining counties the decrease has ranged from 10 to as much as 29 per cent. An interesting table appears in the report showing that, relatively to the total population, the marriage-rates in seven European countries averaged from 1 to 23 per cent. above the rates of England and Wales, whilst in eight other European countries the rates ranged from 1 to 37 per cent. below the English rate. Within the last 35 years the rate of births in this country, calculated on the married female population aged from 15 to 45 years, has decreased by 22 per cent. Disregarding any part of this decrease which may be due to increase of the mean age at marriage, it would appear that the fertility of married women has decreased by about one-fifth and this decrease is the main cause of the fall in the birth-rate. If the fertility of married women had been identical in 1870–72 and 1904 the legitimate births in the latter year would have numbered 247,285 more than those actually recorded. Broadly

speaking, it appears that of the total decrease of the birth-rate since 1870 approximately 70 per cent. may be put down to decreased fertility of married women, about 10 per cent. to the decrease of illegitimacy, and the remaining 20 per cent. to the decrease in the proportion of married women at conceptive ages.

With respect to the waning fertility of married women, the Registrar-General draws attention to the fact that in the year 1904 "the falling birth-rate reached the lowest ebb on record in this country." He further shows that although the fertility of women is higher in the country than in the town districts, nevertheless the birth-rate, based on the number of women living at conceptive ages—i.e., from 15 to 45 years—is falling more rapidly in the former than in the latter districts owing, no doubt, to the continued migration of young women to the towns. In the United Kingdom, as well as in the colonies and in most foreign countries, the birth-rate has shown in recent years a tendency to decline, the only exceptions being Russia and Ceylon, in both of which countries the system of registration seems to be defective. Taking as a criterion the average English birth-rates in the latest decennium, it appears than in no fewer than 12 European countries the birth-rates were above the English average by from 2 to 66 per cent., whilst in four only of the European countries were the birth-rates below that of England. It is worthy of note that the recorded birth-rate of France is below that of England by not less than 25 per cent. and that of Ireland below it by 21 per cent. In France the birth-rate has, with slight fluctuations, steadily fallen from 26·7 per 1000 of the population in the year 1872 to 20·9 in 1904. For the great disparities in the birth-rates in the several countries it is difficult to account, although they would probably admit of explanation if allowance could be made for differences in the age and sex constitution of the populations, especially with regard to the proportion of women of conceptive ages. At present, however, this correction is impracticable. For example, if the birth-rates of England and Ireland calculated in the usual way be compared the Irish birth-rate will appear considerably lower than that of England, whereas if the rates are measured by the proportion of legitimate births to the number of married women aged from 15 to 45 years the Irish rate is shown to be considerably the greater. From Sir WILLIAM DUNBAR'S remarks we gather that whilst in his judgment it would be advantageous that the English birth registers should be improved upon the lines adopted by those countries that are more advanced than our own in matters statistical and that they should include additional particulars as regards the age of parents and the number of children born, nevertheless it would be impracticable to adopt for this country the foreign system, say of France, unless our present registration law were entirely recast. Therefore he thinks that it would be unwise at present to disturb the existing system of birth registration in England but considers that a well-devised system of early notification of births—legalised and worked in conjunction with the present registration system on the one hand and with sanitary administration on the other—might prove practicable and useful.

The law of interdependence is recognised by statisticians as applying to the ratios of birth and death in a population. And respecting this the Registrar-General emphasises some elementary facts which are as yet but imperfectly apprehended. He points out that the community is made up of groups of persons who are subject to widely differing rates of mortality. Thus, the mortality of infants in their first year of life is nearly ten times as great as that of persons at all ages, in the second year of life it is about three times, and in the third year it nearly approaches that standard. At ages above three years the mortality falls below the general rate and rapidly decreases until between ten and 15 years it scarcely exceeds one-tenth part of that rate. The mortality then rises, slowly at first and then rapidly, until the fifty-fifth year of age, and then the rise is rapid up to the highest ages. From this it follows that an increase in the proportion of children under three years of age, or of persons above 50 years of age in a community must involve a rise in the general death-rate, and this irrespectively of other conditions of environment. The converse of this is obviously true also. The first result of a decreased birth-rate will be a fall in the death-rate. After three years, however, this fall will receive a check, because of a falling off in the proportion of children with low death-rates. Whatever may be the cause of the increasing decline in the birth-rate there is no doubt that very much may be done to stay the terrible waste of life which the report shows to be still going on in our midst. "This," says the Registrar-General, "should be regarded as one of the master keys of the situation." Again, he remarks, "When it is realised that children who have not reached the fifth anniversary of their birth contribute nearly one-third part to the death roll at all ages, although they form only one-ninth part of the total population, the necessity becomes urgent for a careful consideration of the causes that regulate life and death in this important section of the community." The causes at work in producing what the Registrar-General properly designates "the enormous death roll due to infant mortality" are fully dealt with in another section of the present report, to which we propose to refer on a future occasion. In his final remarks Sir WILLIAM DUNBAR expresses his personal indebtedness to members of the medical profession throughout the country for the willing and valuable assistance which they have rendered to Dr. TATHAM and himself in their endeavours to record accurate vital statistics and to draw from them legitimate deductions.

The Cambridge Water-supply and Fulbourn Asylum.

THE water-supply of Cambridge is obtained by pumping from two sets of wells to the east of the town, near Cherry Hinton and Fulbourn respectively. At Cherry Hinton part of the water thus obtained is derived from the lower greensand, a stratum which is covered by about 125 feet of impervious gault clay and is effectually guarded from any risk of surface pollution. The rest of the Cherry Hinton supply, however, and practically the whole of the Fulbourn well water are derived from a large area of chalk north of the Gog Magog Hills. The surface of this area is covered only by a

few feet of top soil; the chalk in question is a thick stratum of "lower chalk"—compact in its character, traversed by numerous and extensive fissures, and containing bands of stone and clay, which cause water to be held up locally. Some three years ago the Local Government Board drew attention to the possibility of risk to the Cambridge wells as a result of the irrigation of untreated sewage from the Fulbourn Asylum over the surface of land situated on the chalk area from which the Cambridge wells apparently drew their supply. In consequence, representations on the matter were made by the Commissioners of Lunacy to the visiting committee of the asylum. The latter authority, however, did not admit that danger arose, the commissioners were not in a legal position to exert effective pressure in the matter, and the subject dropped. Fortunately, evidence that pollution of the Cambridge supply in this way, if it occurs, has produced water-borne disease in Cambridge has been absent and it may be noted that numerous clinical and biological tests applied to the waterworks company's water at Cambridge have hitherto given no occasion for suspicion as to the character of the water. The question at issue, however, has now been placed on a different footing in consequence of detailed inquiries and experiments conducted by Dr. S. MONCKTON COPEMAN for the Local Government Board, from which we are bound to conclude that a definite risk exists which it would be unwise to disregard or to attempt to minimise.

Fulbourn Asylum has a population of about 615 persons. The sewage of the establishment, some 70,000 gallons daily, runs over surface channels in fields adjoining the asylum and there rapidly soaks into the ground. The upper layers of soil, as Dr. COPEMAN shows, have in all probability become thoroughly permeated and the liquid finds no difficulty in escaping along the fissured layers of the underlying chalk. A good illustration of this was found at a hole made on one of the irrigation areas, roughly six and a half feet deep and of about 450 gallons capacity. When water was run into this hole from a fire-hose the hole did not become full until over 5000 gallons had been discharged into it and this quantity would probably have been exceeded if it had not been for blocking occasioned by washing in of sewage material. At another point Dr. COPEMAN found that an old cesspool, lately taken into use in order to receive sewage from the medical superintendent's house, had an overflow into a swallow hole in the chalk which at once absorbed about 12,000 gallons discharged into it by the hose. Other opportunities of subsoil pollution arise in connexion with defective and leaky drains at the asylum. Works of re-drainage were begun in December, 1904, and have since been carried out in sections. Dr. COPEMAN and the architect of the asylum are agreed in doubting the sufficiency of the scheme for these works which has been authorised by the visiting committee, though they regard it as a decided improvement on the previous order of things. Before these works were undertaken one of the main drains was tested by blocking the outlet and pumping in water continuously at full pressure. No head of water could be obtained in the drain, the water escaping into the soil as rapidly as it was pumped in. The geological conditions in the neighbourhood of the asylum make it probable that polluting matters thus reaching fissures in the lower chalk would be carried to a large basin of underground water held up by comparatively impervious marl at the base of the chalk which in turn rests upon the impervious gault clay. There are various natural overflows to this basin in the form of springs at Nine Wells, at Fulbourn, and elsewhere along the edge of the basin, while the same mass of water is drawn upon by the Fulbourn wells of the Cambridge Water Company, about three-quarters of a mile from the asylum, and by the asylum well itself. The enormous volume of water concerned naturally suggests the question whether access of even a considerable quantity of polluting matter from the asylum can, after all, be regarded as of much consequence and whether, notwithstanding the known ability of particulate matters to travel long distances through fissured strata, the asylum sewage need be considered from a practical point of view as a material risk to the Cambridge supply. Dr. COPEMAN has furnished answers to these questions by two interesting sets of experiments. On July 20th he discharged into a pit on the asylum irrigation area a solution containing 500 grammes each of fluorescin and sodium hydrate, and followed this up by a flush of water from the fire hydrant. Numerous samples were taken at frequent intervals from observation stations established at different springs in the neighbourhood, at the asylum well, and at the Cambridge waterworks well at Fulbourn. On the following day distinct fluorescence was observed at "stations Nos. 4 and 5," the latter being a ditch of spring water some two-thirds of a mile north-east of the asylum, while later there appears to have been evidence of fluorescence in the water of the asylum baths. The second series of experiments was made with a larger quantity of fluorescin, five pounds of which were discharged at the same spot on Oct. 18th. At different intervals between Oct. 18th and 27th fluorescence was detected at no fewer than seven widely separated stations. The asylum well was affected four days after the fluorescin was put in and the Cambridge waterworks well at Fulbourn five days later. Dr. COPEMAN is careful not to claim that carriage of bacteria would necessarily correspond with carriage of a dissolved substance but there is no mistaking the significance of the experiment.

It is probable, moreover, that Dr. COPEMAN'S inquiries furnish a key to a puzzling incidence of enteric fever on the inhabitants of Fulbourn Asylum during 1905. After a series of somewhat anomalous cases in March the patients and the staff continued to be attacked by enteric fever week after week during April, June, and July. The total of attacks by this disease during this period was 68 and 16 deaths occurred. Local inquiry was made on behalf of the visiting committee by Dr. B. ANNINGSON and Professor G. SIMS WOODHEAD who issued a report on the subject dated July 25th. This report drew attention to opportunities of infection from person to person, particularly in connexion with the later cases, and also to possible contamination of the milk-supply as the cause of the initial cases. There were, however, many gaps in the evidence tending to implicate milk as the cause of the outbreak and in view of the experimental data since obtained it would seem at least likely that the continuance of the outbreak was due to typhoid matter escaping from the asylum drains or from the asylum sewage irrigation areas into fissures in

the chalk and thence being drawn into the asylum well. It is instructive to note in this connexion that part of the work of taking up and relaying the drains of the asylum, to which reference has been made above, had been begun shortly before the commencement of the outbreak. In view of the facts brought out by Dr. COPEMAN'S investigation and of the new considerations regarding the origin of the outbreak of enteric fever in Fulbourn Asylum, to which his report gives rise, new and stringent precautions in connexion with the Cambridge waterworks must be recognised as a matter of necessity. Means should be found to secure that the requisite steps are at once taken by the visiting committee of the asylum, the Waterworks Company, and others concerned.

Annotations.

"Ne quid nimis."

THE PHYSICAL STATE OF SCHOOL CHILDREN: THE QUESTION OF MEDICAL INSPECTION.

IT will be remembered that a deputation was recently received by Mr. Birrell, the Minister of Education, consisting of delegates from the National League for Physical Education and Improvement. The deputation was headed by the Bishop of Ripon, who appealed on behalf of the league for such inspection of school children as would afford a substantial basis of facts necessary for the formation of public opinion, and undoubtedly it is to public opinion that we must look for a practical method of dealing with a most difficult problem. The result of the recent General Election makes it necessary that the people of this country should trust one another much more readily than they have done. The Liberal must not regard the Conservative as a rabid reactionary, and the Conservative must not think of the Socialist as a *sans culotte*. And similarly the ratepayer must not consider every payment out of the rates as spoliation, nor must those so lowly placed as to avoid direct taxation be blind to the burden that is placed upon other shoulders. We must as a nation believe that on the whole we wish each other well, and in particular in the many educational problems now under discussion is this spirit of mutual confidence sorely needed. We do not know what shape the Bill for feeding destitute children may ultimately take but it is clear that this question and the question of the feeding of school children are intimately bound up with the objects which the National League for Physical Education and Improvement has at heart. A method of universal and systematic inspection of school children, such as that which the league suggests, should include the annual record of the height, weight, and chest girth of every child, and would naturally be concerned in the feeding and also in the proper clothing of that child. At once the medical side of such inspection becomes apparent. The contention that a child who has had no breakfast is not in a fit position to be taught whereas a child who has no boots is not rendered the less receptive a pupil by his poverty is wrong, because the absence of boots may cause the presence of disease and the sick child cannot be satisfactorily taught. Medical men will see this point at once, but laymen appear to have difficulty in appreciating it. On Easter Monday there appeared in the *Times* a letter from Professor Howard Marsh, urging the oft-recommended compulsory medical inspection of schools; and undoubtedly it is medical opinion that is required upon all these matters. Professor Howard Marsh spoke of the great benefits that would accrue to the community by the early detection of the common infectious diseases, apart from which medical assistance might well be used in determining such points as the unsuitability of food or clothing. The medical man can say how far the apparently unsuitable breakfast is nutritious and how far the child is really suffering from want of food or want of adequate clothes, while he is taking steps for the prevention of infection from diseases which lay a terrible toll upon our infant population. In regard to the possible reluctance of the public to submit to compulsory medical inspection Professor Howard Marsh says:—

> What view is a parent likely to take when he has had a little personal experience, with which any day may furnish him? Suppose he has three or four children, one of whom being five years old must, according to law, be sent to school. There this child catches scarlet fever, and bringing it home gives it to the rest. One dies and two are seriously damaged. Further, this parent learns that many of his neighbours' families have also been attacked and that there have been several fatal cases. Will not anyone in such circumstances, if he is possessed of ordinary intelligence, hold that as he is compelled by law to send his child to school every possible care ought to be taken to exclude infection? In other words, will he not demand rather than resent inspection?

Professor Marsh would answer his question in the affirmative, and we do the same. Public opinion needs much education in respect of medical service, and the measure of the spread of infectious disease which is definitely due to compulsory school attendance is somewhat under dispute. It is difficult also to persuade the public that medical men are more useful for the prevention of disease than for the cure of disease, yet it is to this end that all scientific efforts are being directed. But we medical men must hope and believe that the public will learn to view medical service in a more enlightened way, while we have a right to ask that the public should credit us with having the general welfare at heart and should resent the frequent attacks made upon the probity of the medical profession by ignorant agitators, by cranks, by quacks, and by unscrupulous journalism. Any support given by the medical profession to a movement for the compulsory medical inspection of school children will inevitably be regarded as purely selfish by persons who do not know, or do not think, or are incapable of imagining any motive save self-interest. But we may hope that the public, as a whole, will see, firstly, that such a course would tend to a vast improvement in our national vital statistics; and, secondly, that the prevention and elimination of disease is hardly a self-interested programme for a profession primarily, at any rate as yet, designed for the cure of disease and relying for its income upon its therapeutic rather than its preventive efforts.

THE HYGIENE OF THE LONDON STREETS AND MOTOR TRAFFIC.

IN an annotation in THE LANCET of July 22nd, 1905, p. 233, under the above heading we pointed out that with the introduction of motor traffic in the streets the old pollution—that of the excreta and emanations of horses—would sooner or later give way to the new pollution, the products of perfect and imperfect combustion of the petrol of the motor. Our anticipation has been speedily realised. The new pollution has become unpleasantly evident in those thoroughfares which are now crowded with motor omnibuses. At times the trail of motor omnibuses is nauseating with smoke and petrol fumes. In a letter printed in the *Times* on Wednesday last Mr. Sidney Colvin enters a vigorous protest against this intolerable nuisance—a protest which is endorsed in strong terms in a leading article in the same journal. We earnestly hope that the matter will not be allowed to rest and that a remedy for this intolerable state of things will be imposed on all the owners of vehicles which create such a sickening and completely unwarranted offence. As the *Times* says, "the stink is already chronic and almost

universal," and so also we may add is the distracting noise which is made by so many of the motor omnibuses. We believe, however, that the Commissioner of Police for the Metropolis has issued a notice to proprietors of motor vehicles, which requires, amongst other things, that no undue noise or vibration should be caused by the machinery of the motor. No motor vehicles, in our opinion, should be allowed to use the streets until they are proved to do their work without smoke and smell and with the least possible noise. There can be little doubt that motor engineers would speedily find a remedy if only such a regulation were put into force. Meanwhile it is satisfactory to learn that electric motor omnibuses, which are inoffensive as regards both smell and noise, have been run with success.

ANTHRACOSIS OF THE LIVER.

ANTHRACOSIS of the liver, or pigmentation by particles of carbon similar to those found in the lungs and bronchial glands of dwellers in towns, is of sufficient rarity to warrant notice, especially as its occurrence offers a pathological problem of some interest for discussion. A few cases are on record, one of the most interesting being that described by Welch in which there was marked increase of the connective tissue wherever the pigment was found. For this reason Welch gave the name of cirrhosis hepatis anthracotica to the condition. The cirrhosis in this case was, however, probably due to some concomitant toxic substance or irritant other than the carbon particles themselves, since in most cases of anthracosis this overgrowth of connective tissue is wanting. Dr. H. R. Alburger records a case in the Proceedings of the Pathological Society of Philadelphia for 1905, p. 137, with a careful description of the condition and a discussion of its pathogenesis. The patient was a woman, aged 55 years, who was admitted to the Philadelphia Hospital for inoperable carcinoma of the uterus, a diagnosis confirmed by the necropsy, at which the growth was found to have extended to the uterine appendages and the retroperitoneal lymphatics. The liver, which weighed 1400 grammes, extended four fingers' breadth below the costal margin owing to prolongation and flattening of the right lobe from tight lacing. There was a shallow transverse groove across this prolongation with a local thickening of Glisson's capsule. On section the liver presented a red surface with indistinct markings. On microscopical examination the interlobular tissue was found to be thickened and the thickening proved to be due to connective tissue of young growing type. In the new tissue of this character around the blood-vessels there were accumulations of black carbon granules of irregular size and shape which were identical in every particular with those usually found in the lungs and bronchial glands. With high magnification the distribution of the pigment was noticed to be much more general than was apparent under the lower powers; it was found in all parts of the lobule, even about the central vein, and also within the protoplasm of the endothelial cells of the capillary walls. A marked excess of polymorphonuclear leucocytes was also noticed both in the interlobular connective tissue, where most of the carbon was found, and also in the intralobular capillaries generally. The conditions observed within the thorax were extensive pleural adhesions, with old calcareous nodules in both lungs and some recent caseous tuberculous lesions. Unfortunately no note was made of the condition of the bronchial lymphatic glands but there was a moderate amount of anthracosis of the lungs. The other lesions found were chronic interstitial nephritis with severe amyloid change. The spleen was also waxy and showed a small amount of carbon pigment about some of the larger vessels. Dr. Alburger, in his discussion of the channel by which the carbon particles reach the liver, points out that under normal conditions the bronchial glands act as completely effective filters but quotes Weigert's observations as showing that when destructive processes occur in them or they are involved in inflammatory adhesions the conditions are favourable for the escape of the pigment contained in them into the general circulation. On this explanation it might be expected that the pigment would be deposited in various organs; this proves to be the case not infrequently in the spleen, more rarely in the liver, and very exceptionally in the kidneys. A second channel which has been suggested as a possible one from the lungs to the liver is by the lymphatics, but the number of lymphatic glands between these organs renders it highly improbable that any pigment would escape. The portal circulation has also been suggested on the supposition that particles of carbon might have been swallowed, but in this case the particles of pigment would be more likely to remain in the intestinal wall or to be carried to the mesenteric lymph glands. The suggestion offered by Weigert and adopted by Dr. Alburger seems much more plausible. Considering the frequency of disease of the bronchial glands it is highly probable that pigmentation of other organs would be found to be more common if systematic microscopical examination were carried out in all cases, since it is exceptional for such a degree of anthracosis to be present as to be visible macroscopically.

THE "HARDENING" EFFECTS OF COLD WATER.

THE "hardening" effects of cold water ablution are not so universally admitted in England now as they were some few years back when the *cold tub* on getting out of bed in the morning was taken as a matter of course by all, young or old, who aspired to health as well as to cleanliness. In Germany, however, cold affusion is apparently still recognised as a prophylactic against many of the ills that human flesh is heir to, especially in winter. According to an article by Regimentsarzt Fischer in *Der Militaerarzt*, No. 16 of 1905, affections of the respiratory organs, of the digestive tube, of the articulations, and of the muscles, all of which, provoked by chills, are very prevalent amongst German soldiers, in spite of the precautionary measures that are sedulously inculcated, can be minimised or even entirely warded off by the judicious employment of cold water. It is well known, he says, that the impression produced upon the body by the sudden application of cold water affusion determines a passing excitation of the vaso-constrictors which is speedily followed by a paralytic phase wherein the blood tends to flow towards the surface. To the initial sensation of cold there succeeds a sensation of heat; this is what is known as reaction. The colder the water the more intense the reaction. The habit of taking a daily plunge into cold water strengthens the vascular functions of the skin and renders it better able to protect the system against chills. In order to establish this hardening process amongst soldiers Regimentsarzt Fischer proposes to instal in every barrack room a caisson of zinc or wood fitted with a discharge pipe. The water could be procured from the general supply when available or else from reservoirs attached to the wall at a suitable height and should be distributed through a perforated nozzle. Every soldier on rising in the morning would proceed to apply a douche to his entire body (with the exception of his head) during three or four seconds and then, having dried himself superficially, would return to his bed and remain there well wrapped up until reaction was established. As a rule this should not take longer than a minute or two, so the duration of the entire process would not encroach inordinately upon the time usually devoted by a soldier to the elaboration of his toilet. An ordinary English shower-bath would apparently answer Regimentsarzt Fischer's requirements

and if it were deemed essential that the soldiers' heads should not be subjected to the hardening process they could wear waterproof skull caps as some ladies do when sea-bathing.

THE PSYCHOLOGY OF THE BARRACKS.[1]

AN Italian contributor writes:—"'*La Caserma, voilà l'ennemi!*' exclaims many a continental reformer, who thus proceeds to congratulate the Anglo-Saxon civilisation on the immunity enjoyed by the young Briton and American from compulsory military service. Nor is the exclamation confined to the 'reformer,' more or less 'professional.' On the testimony of an English lady in Rome whose *salon* was for years frequented by the foreigner of every nationality the one theme that, more than any other, emerged above the hum of polyglot conversation was the freedom reserved for her compatriots of making the career of arms a matter of individual choice. Not that among the said compatriots there was not an occasional interlocutor who would dwell on the redeeming points of conscription and even venture on the remark that it might one day commend itself to the Anglo-Saxon world. He was invariably met by the Italian or the Frenchman, by the German or the Austrian with the assurance that he had but to go through their experience to coincide with their view or to modify his own. Certainly of late years the continental press, French, Italian, and German, has teemed with publications disclosing the seamy side of garrison life—its troubles, its trials, and worse, inseparable from enforced subjection to the levelling roller of 'discipline' in uncongenial, often eminently undesirable, conditions, moral and physical. True, these publications are mostly in the form of fiction but all bear the impress of familiarity at first-hand with fact, while embodying actual experiences imprinted on the memory in characters not to be effaced. The latest addition to the series is of Italian authorship and though its tone and its tenor are those of the 'apologia' it supplies us in its very enumeration of the evils that it seeks to minimise with an all too intelligible commentary on that revolt against the system which, long burrowing beneath the surface, cropped up last autumn through the Alta Italia in open refusal to answer the 'call to arms.' The September and October of 1905 will long be memorable for the 'cospirazione nell' esercito' which led to numerous arrests and to the subsequent impounding of documents which showed that the 'conspiracy' was international in origin and that the shock of insubordination felt but for a moment in the French garrisons had a yet more pronounced ricochet in those of Italy. Captain Sangiacomo, whose brightly written and thoroughly well-informed *opuscule* seems to have been designed as a corrective to the 'anti-militarist' leaflets steadily, if stealthily, distributed among Italian conscripts, draws with much power a reassuring picture of his country's army. He points with undeniable force to its educative influence, to the salutary effects wrought on the backward proletariat of the towns and the still more backward youth of the rural districts. He is eloquent on the transformation of the city arab and the rural bumpkin, unlettered, untidy, in every sense uncivilised, into the recruit whom a few months of garrison life have taught to read and to write, to be cleanly in his habits, to become proficient in this or that *métier*, so as to rejoin society an efficient and a law-abiding member, not without the much desiderated 'sense of citizenship.' Equally eloquent and not less convincing is he when he shows that besides being an educational institution on a national scale the army, reinforced by periodical levies, has been, and still is, a 'unifying influence,' making the Sicilian after a sojourn in Piedmontese barracks, or a Venetian after living in a Calabrian garrison town, more thoroughly Italian in sentiment and in sympathy than he had any chance of becoming if left within the provincial, not to say parochial, limits of his birthplace. From the Alps to Etna, Italy has undergone, thanks to her army, a process of interpenetration, moral and intellectual, of which she is now reaping the fruits, so that even in the matter of spoken dialect a Lombard regiment no longer requires an interpreter when landing in Naples or a Neapolitan when quartered in Genoa. All this, and much more, in favour of her compulsory military service may truly be claimed by Italy. But there is another side to the picture which all Captain Sangiacomo's adroit and genial special pleading cannot annul. Some features of this 'reverse view' are, no doubt, temporary—for example, the defective construction and appointments of the barracks themselves, often old monasteries, with all their insanitary conditions and gloomy 'accommodation' hastily utilised for regimental life and not yet replaced by buildings specially adapted for such a purpose. It is the permanent and far more prejudicial features of 'life in quarters'—features common to every continental army but seen at their worst in Italy—that the latest apologist of conscription cannot put out of sight. In the first place the steady withdrawal from the country to the towns of such masses of young Italians not only encourages, but actually causes, that distaste for rural life and rural labour which, a progressive evil throughout Europe, is peculiarly felt in Italy, whose chief industry is agriculture and whose impressionable youth is beyond all others responsive to the seductive stimulants of urban example. Then again, the absence of all influences or attractions antagonistic to animal indulgence is a feature of Italian barrack life, even more fatally pronounced than is that of other continental countries. Here, indeed, Captain Sangiacomo for once drops the *rôle* of apologist and draws a picture of the moral 'sink' into which the beardless conscript from the country is plunged on his transport to the city garrison which preludes an appeal to the supreme military authority for immediate countervailing measures. I cannot follow him in his enumeration of these deteriorating conditions, beginning with the low 'boozing-ken' and ending with the 'lurido angiporto dove amore e lue venerea sono sinonimi.' Suffice it to say, that the vitiated, often hopelessly septic, constitution with which the Italian conscript rejoins civilian society is a recognised cause of the enfeebled physique which he transmits to his progeny and which, as a Nemesis, explains the increasing rejections of recruits on each successive levy, for 'gracilità' and other bodily disqualifications culminating in the 'epileptoid subjects' whose admission into the ranks is the occasion (*teste* Lombroso) of the abnormal frequency of homicidal mania in the army of Italy. To begin from where I set out, in spite of its latest and not least effective apologist, conscription, as practised and experienced abroad, seems unlikely to conciliate the lasting favour of the countries in which it prevails or to lessen the envy which they undeniably entertain for that sister civilisation which has found the voluntary system of service compatible with the most perfect means of 'national defence' not only in keeping its shores inviolate but in protecting the frontiers of a 'colonial expansion' unequalled in the history of the world."

[1] Psicbologia della Caserma. Per il Capitano Olivieri Sangiacomo. Roma-Torino: Roux e Viarengo, 1. vol., 1906, 3 fr. 50 centimes.

ANTHROPOLOGY AT OXFORD.

THE University of Oxford established a diploma in anthropology by statute in 1905 and courses of instruction for the same were arranged to begin in Hilary term of this year. The first annual examination will be held in the coming Trinity term. The diploma will "be granted to all persons, whether members of the University or not, who, after

pursuing an approved course of study, satisfy examiners, appointed by the University, as to their proficiency in anthropology." Materials for the study of anthropology became available at the time of the acquisition in 1685 of the Tradescant collection which was for a long time the only attempt to make possible the comparative study of human handiwork. Now, however, owing to the collection of human crania established in the department of comparative anatomy by the late Professor Rolleston, the Pitt Rivers collection, and the generosity of the late Mr. C. D. Fortnum, there is ample material for the study of anthropology. Regulations and other information concerning the examination for the diploma and admission thereto may be obtained from the secretary to the committee for anthropology, Mr. J. L. Myres, M.A., Christ Church, Oxford. And here we may fitly refer to the loss which Oxford in particular and science in general has sustained by the death of Professor W. F. R. Weldon, F.R.S., the Linacre professor of comparative anatomy, who died suddenly in London on Good Friday, April 13th. He was an *ex-officio* member of the committee on anthropology and although he ended his days as holder of a post in the University of Oxford, was a Cambridge man, obtaining a Fellowship at St. John's College of that University in 1884. Thence he went to University College, London, as professor of comparative anatomy and zoology and in 1899 he resigned this chair to take up the one at Oxford which he held till his death. We are glad that Oxford has decided to institute an examination in anthropology and venture strongly to recommend a study of this subject to all who have to do officially with races of an alien culture—such as colonial administrators, missionaries, and Government explorers. Much heartburning, loss of life, and even political complications might have been avoided if explorers and missionaries had not in former years, if not so much nowadays, gone out to alien lands with a fixed idea that "manners they have none and their customs are beastly."

THE SOUTHBOROUGH ISOLATION HOSPITAL.

THE vaunted supremacy of English sanitary administration receives at times such shocks that we are inclined to raise the question whether the reputation which we enjoy is really merited, and the story of the action, or rather culpable inaction, of the Southborough urban district council with reference to its fever hospital seems to suggest that in certain matters we are still in the eighteenth century. Through the courtesy of the editor of the *Tunbridge Wells Advertiser* we have received a detailed account of a case which was recently brought before his honour Judge Emden at the Tunbridge Wells county court in which the Southborough urban district council sought to recover from the parents of two patients who had been inmates of its fever hospital the cost of such patients' maintenance, the payment being contested in order to make public certain allegations which, if true, must leave the district council in a most uncomfortable position with those who have reposed trust in it. According to the evidence, this hospital, which contains 12 beds, was to a large extent as a matter of practice, whatever may be the nominal position, under the general supervision of the sanitary inspector, who has, it may be added, no qualification in sanitary matters but who, according to his own showing, is responsible for the payment of a proper and efficient staff. At the hospital there reside a man and his wife, the latter acting as nurse and caretaker and being also responsible for the washing and other work in connexion with the institution. Under her there is a kitchen-maid. It was in these circumstances that the two patients referred to, an adult brother and sister, were admitted as private patients at a charge of one guinea per week each and under the care of the medical attendant to the hospital. So far as the balance of evidence goes, the female patient, although seriously ill, was not fed in a proper or regular fashion, especially at night, and the attendant caretaker, although she had acted as an assistant nurse in charge of a ward at a provincial hospital, did not appear to possess the necessary knowledge for dealing with the case in a satisfactory fashion. Amongst other things, she allowed the patient to get up from her bed when she was unfitted to do so. At night the caretaker went to bed in the ward in which was the patient, giving the latter a stick wherewith to wake her if necessary. On the patient feeling faint there was difficulty in waking the nurse and even then there being nothing in the shape of stimulants in the hospital, water was the only restorative available! "There was no stimulant in the hospital by the regulations of the council." After this the kitchen-maid was compelled to sit up with the patient for two nights, although she (the kitchen-maid) was altogether unfitted for such a responsible task. It was only after the lapse of four days that a trained nurse was procured from Dover, but her advent seems to have led to so much unpleasantness that pressure is alleged to have been put upon her to prevent her from giving evidence before the court, a circumstance which elicited from the judge some very uncomplimentary criticisms. We must confess that the facts brought out during this action manifest a very unsatisfactory condition of affairs at the Southborough hospital—a general muddle is perhaps the fairest comment—and we are by no means surprised to find that the action was dismissed, with costs on the higher scale. We are fully conscious of the difficulty of administering small isolation hospitals but there is no excuse for leaving patients seriously ill in charge of kitchen-maids or for devolving the practical supervision of the institution upon a sanitary inspector, whether qualified or not qualified. Nor can much check on the administration of the hospital be expected from the visit of a district councillor who does not regard it as necessary to enter the hospital. The medical attendant to the hospital is to be congratulated on his evidence, which was eminently fair, notwithstanding the fact that it did not redound to the credit of the Southborough district council.

THE INDUCTION OF LABOUR BY HYPNOTISM.

AT a meeting of the Society of Hypnology and Psychology in Paris Dr. Bonjour read some very interesting observations, which will be found in the letter from our Paris correspondent on p. 1143, on the induction of labour by means of hypnotic suggestion. In a certain number of cases under his care he found it possible, by placing the patient in a hypnotised state, to insure the occurrence of labour on a certain date. He had found that this could be done provided that the day was not earlier than eight days before that which had been determined by calculation and examination of the patient as the expected day of the confinement. He further claimed that even if the physician could not be sure of determining the onset of labour on a definite date, yet he could insure that it should commence on a given night, so that the period of dilatation and expulsion would take place the following day. It is difficult to believe that even under the influence of hypnotic suggestion the onset of labour with any certainty can be determined for a certain time or date. We need hardly point out what a gain the possession of such a power would be to the busy medical man. One of the main drawbacks of a large maternity practice is the fact that the exact time at which a given confinement will commence can never be settled with anything approaching accuracy. No doubt mental emotion plays some part in causing the onset of labour, but we are quite ignorant as to what is the part played by the patient's will in this matter. We are still in the dark as to the exact cause of the occurrence of

labour at a given time, but in view of the importance that must be attributed to the occurrence of complete maturity of the fœtus and placenta when labour does occur it is difficult to imagine that mere hypnotic influence could bring it on in a case in which it was not very imminent. Indeed, Dr. Bonjour admits that his method of suggestion fails if it is attempted more than eight days before the expected date of the confinement. The use of hypnotic suggestion is no new matter in connexion with obstetric medicine. A large number of cases have now been placed on record in which hypnotism has been employed to annul or, at any rate, to diminish the pains of labour, and in many instances with surprisingly good effect. In one series of 28 cases published by a Russian observer in no less than 20 as the result of the hypnotic suggestion the labours took place painlessly, in three the first stage was painless, while five of the patients could not be hypnotised. In ten instances the hypnotic *séances* were commenced one and a half months before full term, and in the remaining 18 immediately before the onset of the pains. Suggestion has been used not only with success in the treatment of the pains of labour but also as a means of treating some of the neuroses of pregnancy. Thus it has proved often successful in cases of nervous vomiting. No bad results have been observed either in the mother or the child and it has been found in cases where it is difficult to induce the hypnotic state on account of the presence of uterine pains the administration of a little chloroform is frequently followed by success. The occurrence of painless, or almost painless, labour during the hypnotic state is a well-authenticated fact and has been observed by many trustworthy observers and as a therapeutic measure has undoubtedly proved of considerable value in the hands of many practitioners. We shall await with interest further evidence as to the possibility of determining the onset of labour by the same means but we fear, even if it be proved possible, that the number of cases in which it can be practised with any degree of certainty will be very small indeed.

AN INSULT TO THE PROFESSION.

IT has happened more than once in the history of human achievement that the work of some great artist has not fully come home to the minds of his contemporaries and has only been completely appreciated, even by a later generation, when light has been thrown upon it by the mind of some supremely gifted commentator. In the twentieth century things move more quickly than of yore and good fortune brings us the commentator within a comparatively short period after the work of the artist has been completed. We are moved to these reflections by the perusal of a speech recently delivered in the House of Commons by Mr. Henry Vivian, M.P., who at the last election attained the eminence of "Labour Member" for Birkenhead and who feels himself to be acquainted intimately with the views and thoughts of the medical profession. His discourse has reminded us of the great painting by Mr. Fildes, R.A., which a few years ago charmed all spectators at the exhibition and which since, in the form of an engraving, has become an ornament of many homes. The picture represented a medical man, apparently a hard-worked country doctor, bending in profound anxiety over the bed of a sick child, amid the humble surroundings of a cottage. To the superficial view of the ordinary spectator the strong and rugged, though kindly, face was expressive of deep solicitude for the recovery of the little patient and of profound sympathy for the distress of which the illness was the cause, all of which was sufficiently indicated in the bearing and positions of the parents. The ordinary spectator was quite wrong. Mr. Vivian knows better and has told Parliament all about it. The question which really troubles the thoughtful doctor in these situations is to determine whether it would be more profitable to him to cure the child and to take his chance of eventual payment from the father, or to withhold his hand and thus to secure the secret commission which he would receive from the coffin maker. We had never before thought of this aspect of the question, and we recognise at a glance the illuminating power of genius—the genius of misrepresentation.

HEIGHT AND BODY-WEIGHT.

ACCORDING to the formula propounded by Paul Broca a grown man's weight in kilogrammes should correspond with the number of centimetres in his stature above one metre. In order to test the approximate accuracy of this statement Generalarzt Villaret of the German army has collated data from the records of 42,563 soldiers who had all been accepted as physically fit for the service. As far as regards little men—that is, men whose height varied between 1·54 and 1·59 metres—the formula of Broca was confirmed, but with medium-sized men—that is, men whose height varied between 1·60 and 1·74 metres—the body-weight was under the standard, the divergence increasing with almost mathematical regularity from below upwards. In the case of tall men—that is, men above 1·74 metres (5 feet 7 inches)—the divergence was still greater and here, too, it increased regularly in accordance with the individual's height. Generally speaking, Generalarzt Villaret found that a recruit's weight after a few months' service was largely influenced by his calling before enlistment. Men coming from a sedentary occupation, such as clerks, tailors, saddlers, and so on, put on weight very quickly, whereas those who had had opportunities for overfeeding, such as confectioners, bakers, butchers, and brewers, lost it with corresponding rapidity. Recruits recovering from serious illnesses, or who had had to work under defective sanitary conditions, might safely be accepted when below the standard, for their weight was certain to increase, and the same rule applied to youths brought up in poverty who had never in their lives had as much food as they could eat.

THE VERMIFORM APPENDIX.

IN a memoir published several years ago Dr. J. A. Berry gave a detailed account of the histology of the true cæcal apex or the vermiform appendix in animals from pisces to anthropoids. In a paper read at the first International Federation Congress of Anatomy held at Geneva in August, 1905, and reproduced in the *Journal of Anatomy and Physiology*, vol. xl., part 3, p. 247, Dr. Berry, in conjunction with Dr. L. A. H. Lack, gives the results of his later researches in man, influenced in their direction by the important essay of Mr. C. B. Lockwood on Appendicitis, its Pathology and Surgery. Dr. Berry having in his first paper shown that lymphoid tissue is the characteristic feature of the appendix, in his present communication, aided by Dr. Lack, gives the results of his investigations as to the age at which lymphoid tissue first appears in the human appendix, for it does not exist in the newly born infant; next the age at which it tends, if at all, to disappear; and, lastly, discusses the question whether the obliteration of the human appendix is a physiological or a pathological process. In regard to the first point, whilst at birth there is practically no lymphoid tissue and lymph follicles are absent, within 14 days two well-marked lymph follicles have made their appearance and lymphoid tissue is scattered profusely throughout the whole of the mucosa. At six weeks there are from eight to 12 lymph follicles, and the whole of the mucosa and submucosa, as is clearly shown in the reproduction of a photograph, is

densely infiltrated with lymphoid tissue. At 32 weeks the vermiform appendix of man is to all appearances an actively functional gland. There are, then, to be met with in the plane of a transverse section from ten to 12 well-marked and large lymph follicles and about 160 tubular glands. The conclusion to be drawn in regard to the first point is, then, that whilst there is no lymphoid tissue in the cæcal apex of the lower animals or in the appendix of man at the time of birth the portion of gut under consideration has become within a period of from one to six weeks an actively functional lymph gland. In regard to the second point the writers entertain no doubt that the lymphoid tissue does tend to disappear from the human appendix, for the number of lymph follicles visible in transverse sections of appendices will be found to become less numerous with advancing age, so that whilst six or seven follicles may be found in a transverse section of an appendix up to the age of 40 years, at the age of 60 years and above there are only traces or a total absence of them. The lymphoid tissue, however, never totally disappears. Lastly, they consider that obliteration of the vermiform appendix is a pathological process. On these various grounds the vermiform appendix of man may be regarded as by no means a vestigial remnant or an organ in a state of retrogression but as an actively functional lymph gland. The writers consider that the passage of inert foreign bodies into the appendix is extremely rare, though the entrance of living organisms such as the trichocephalus is easily conceivable and has been several times demonstrated in cases where appendicitis was present.

ENTOPTICS.

IN a communication made to the Royal Dublin Society in March of the present year Professor W. F. Barrett calls attention to the phenomena of entoptic vision or the self examination of objects within the eye. It is remarkable that the subject of entoptics appears to have dropped out of the consideration of most of the writers of recent ophthalmological manuals and treatises. The reason of this is probably to be found in the circumstance that it belongs properly to physiological optics and is therefore discarded by authors who require all the space at their command for the consideration of the defects, disorders, and diseases of the eye; yet the appearances presented by motes in the eye—muscæ volitantes—are so annoying that inquiries as to their nature and relief are constantly made by patients. In many instances a favourable prognosis may be given with assurance that they will become fainter or less numerous and will ultimately disappear, either by absorption or by rising out of the line of vision; for their apparent descent is attributable to their specific gravity being lower than the surrounding fluid. They hence ascend and their shadow on the retina being inverted they appear by the law of projection to fall. Nevertheless, they may in general be regarded as indicative of some degree of impaired nutrition of the health or of the eye and should not be disregarded by the physician as altogether unimportant. Entoptic phenomena are most easily demonstrated and examined by looking at a clear sky or a well illuminated street through a pinhole aperture in a piece of cardboard or thin metal held close to the eye. Professor Barrett points out that entoptic objects are seen inverted, the reason being that the rays of visible direction proceeding from the aperture do not cross at the nodal point of the eye, and that as the path of the projected shadow of any entoptic object corresponds to the path of the incident rays crossing at the pin aperture only the enlargement of the image is in the direct ratio of the distance of the pinhole from the pupil to its distance from the illuminated screen on which the shadow is projected. He proceeds to show how by a simple calculation the size of a musca can be determined and how it may be delineated. Professor Barrett promises that in a future communication he will describe an instrument which he has devised and which he has termed the entoptoscope by which the position and the size of floating muscæ can be determined.

THE HONOURS TO GUIDO BACCELLI.

THE "plebiscito universale di ammirazione" of which on Sunday, April 8th, the head of the Roman Medical School was the object must have more than realised the intentions of its promoters. From Royalty itself to the leading representatives of every interest, professional and lay, there was but one sentiment that animated the distinguished auditory that thronged the Capitol—one of respect, esteem, and kindly "brotherhood" towards the physician, the man of letters, the citizen, and the statesman whom it had met to honour. Not for the first time has THE LANCET[1] borne testimony to what Italy and the outside world owe to the clinician and pathologist who has worthily held up the torch transmitted from Baglivi to Morgagni and from Morgagni to the modern schools. We have only to-day to congratulate the "youngest of the Great Powers" on her still possessing a son so able, so accomplished, so public-spirited, so inspiring, whether in the clinical lecture room or in the legislative chamber—possessing him, moreover, in the maturity and the unimpaired vigour of his many-sided energy. The crowning work of his life—the foundation of the "Policlinico"—was the subject of special eulogy on the occasion of April 8th and we may now repeat what we expressed when that great institution was planned—to wit, our sense of the truly catholic spirit in which its founder drew upon the experience of the scientific world for its equipment, among the evidences of which was his selection of the English Lister as the counterpart of the Italian Morgagni, to typify, by the sculptor's art, the genius of surgery side by side with that of medicine.

> "Dum Tibris Etruscum in mare defluat
> Flavente lapsu, stet Polyclinicum
> Fulgens, tributurum salutem
> Italiæ dominæque Romæ."

May it continue to stand not only for the humane science it cultivates and reduces to practice but as testimony to the "fratellanza," the brotherhood, that knows no distinctions of race or creed, responsive only to the watchword which makes "all men's good, each man's rule."

ANGINAL ATTACKS IN CONGENITAL HEART DISEASE.

IT is frequently observed that children with congenital heart disease suffer from convulsions of a greater or less degree of severity but the occurrence of anginal attacks analogous to those of adults is extremely rare. Dr. Norbert Swoboda showed a case of this kind before the pediatric section of the Gesellschaft für innere Medicin und Kinderheilkunde in Vienna on March 1st, which is recorded in the *Wiener Medicinische Wochenschrift*. The patient was an infant, aged 18 months, of weakly, ill-developed appearance. There were marked cyanosis and persistent dyspnœa, the fingers were clubbed, and the extremities were cold and blue. There was marked pulsation in the præcordial region but no thrill. On auscultation a loud systolic murmur was audible over the whole cardiac region, while the pulmonary second sound was accentuated. On examination by the Roentgen rays the cardiac shadow was distinctly enlarged both to the right and the left. The general condition of the child until the age of 14 months was fairly satisfactory, but from that time, either during or immediately preceding the act of defæcation, severe attacks of anginal character developed, lasting from one to 12 hours.

[1] THE LANCET, Jan. 6th (p. 51) and March 31st (p. 808), 1894.

The attacks occurred whether the motions were hard or loose or the result of an enema but no local condition was found to account for them. At the beginning of the attacks the infant would usually groan and soon developed an extreme degree of expiratory dyspnœa with great distress, the eyes starting from their sockets, the skin becoming bluish-black and cold, while eventually consciousness was sometimes lost. The attacks frequently ended with vomiting, epistaxis, or cough. During their course the pulse became small, though not accelerated, while the systolic murmur was no longer audible. In the intervals between the seizures the infant was cheerful and active but the general condition was much depressed by them and a distinct weakness of the left arm developed. A somewhat similar case has been recorded by Heubner in an infant aged five and a half months; in this case death occurred in one of the attacks. Apart from the rarity of the condition Dr. Swoboda's case is of interest from the association of the seizures with the act of defæcation and also from the subsequent weakness of the left arm.

TOAST.

PROBABLY modern methods of milling flour have much to do with the lack of flavour which marks the present-day loaf of bread. One thing at least we know, and that is that roller milling, as distinct from the old method of grinding wheat between stones, leads to the elimination of the germ of the wheat, and the peculiar nutty flavour—which is now unfortunately a matter of history—of the old-fashioned loaf was due perhaps to the retention of this germ. The public, or at all events a large section of it, would appear to be ever stupidly ready to sacrifice genuine dietetic quality in favour of colour—bread nowadays must be quite white and milk must look yellowish—and these silly criteria of an imitation excellence are easily supplied. The increasing popularity of toast is a somewhat interesting fact in that it possibly indicates that, after all, the public resents, it may be unconsciously, the insipidity of modern bread. Toast is not only in demand on the breakfast table but it often appears now in place of the roll or slice of bread on the dinner table also. This quite common preference which is exhibited for toast may be because experience has taught that well-made toast is more digestible than bread. It is more probable that toast is popular because it is palatable and has an attractive flavour. In a similar way the crusty part of bread is chosen by a good many people because it possesses a flavour analogous in a way to that of toast, which is decidedly more interesting to the palate than the soft and moist portions of modern bread, for these are with difficulty completely masticated and insalivated, being too solid in their mass to allow of the free incorporation of the digestive juices. Toast places a lighter tax on the digestive functions since during its preparation some of the starch grains of the flour are ruptured, while some are converted into dextrin which is easily soluble. Further, the crispness of toast necessitates its being completely moistened in the mouth before it can be swallowed. As a rule, therefore, toast is thoroughly submitted to the action of the preliminary digestive process in the mouth. It is important, however, that toast should be crisp all through, as otherwise the internal portions tend to become plastic and soft like new bread and, like it, difficult of digestion if not thoroughly masticated. New bread is not necessarily indigestible. It only proves so in some cases, because on account of its plasticity and softness there is a strong tendency to swallow it before it is thoroughly masticated and insalivated. If bread possessing the peculiarly attractive flavour which characterised it in the days of stone milling were placed on the modern breakfast or dinner table the preference for toast would, we feel safe in saying, very sensibly diminish.

THE STATISTICS OF THE MEDICAL STUDENTS IN GERMANY.

STATISTICS published by the *Frankfurter Zeitung* as to the number and distribution of medical students throughout the German Universities show in a general way that the popularity of medical studies increased progressively from 1860 to 1890, since which year it has declined. During the winter session 1905–06 the total number of medical students in Germany was 6080; last summer it was 6032; during the previous year 6153. In 1885 the total was 7725; in 1890, 8986; and in 1896, 7851. These figures include foreign students, of which there are at present 895 registered in the Universities; last summer there were 751. German subjects registered as medical students numbered in 1861, 2000; in 1872, 3365; and in 1881, 4389. The proportion per 100,000 inhabitants shown by medical students of German nationality at the present date is 8·5; in 1890 it was 14, in 1881 it was 9·7, in 1872 it was 8·5, and in 1861 it was 5·6. The popularity of medical studies in the different universities is shown as follows. Since 1882 the number of medical students at Berlin, Munich, Freiburg, Heidelberg, Jena, Kiel, Giessen, and Rostock has increased 50 per cent. and at Erlangen over 25 per cent. At Greifswald it has decreased 100 per cent., at Breslau about 50 per cent., at Leipsic and Würzburg more than 25 per cent., and at Königsberg and Halle more than 20 per cent. Münster alone of German Universities has no medical faculty.

A SESSIONAL meeting of the Royal Sanitary Institute will be held at the Parkes Museum on Friday, April 27th, at 5 P.M., when a discussion on the Consumptive at Home will be opened by Dr. G. A. Heron. Sir R. Douglas Powell, Dr. J. E. Squire, and Dr. F. C. Shrubsall are expected to take part in the discussion. On Saturday, April 28th, a visit will be made by members of the Institute to the Mount Vernon Hospital for Consumption at Hampstead. Members will meet at the hospital at 3 P.M., and after the visit will be entertained at tea at Upper Frognal Lodge. Those wishing to attend the visit should send in their names to the secretary by Tuesday next, April 24th.

CREMATION AND SANITATION.

UNDER the auspices of the Royal Sanitary Institute a provincial sessional meeting was held at Leicester Town Hall on March 24th, when the subject discussed was Cremation. Colonel J. LANE NOTTER, R.A.M.C., chairman of the council of the institute, presided.

The CHAIRMAN, in opening the proceedings, said that very decided sanitary advantages were connected with the practice of cremation and it was satisfactory to find that this method of disposing of the dead was growing in favour with all classes.

Dr. C. KILLICK MILLARD (medical officer of health of Leicester) read a paper on Cremation, giving at the same time various particulars relating to the crematorium of the Leicester Corporation. He said that the practice of disposing of the human body by fire was largely adopted by the ancients, and in Greece the right to be burnt was only denied to suicides, young infants, and persons struck by lightning. He then continued as follows:—

GENERAL CONSIDERATIONS.

Some people prefer not to face this question because they are over-concerned about the fate of the body after death and fear to suggest any alternative to old-fashioned and familiar custom. Others, again, do not face it because they feel so little concern and do not care what happens to the body. Neither of these extremes, it seems to me, is right. It is true that the body after death is no more than the

empty shell from which the spirit—the living and immortal soul—has fled, but the body is, nevertheless, sacred in death as well as in life, and it is surely our duty to provide for its reverent disposal by the method which, in the light of modern science and with due consideration for the interests of the living, appears to us to be the best. The human body, in common with bodies of all living things, must inevitably, sooner or later, undergo disintegration and the highly complex organic substances of which it is composed must eventually be resolved into simpler compounds, such as water and carbonic acid, which are dissipated, leaving only a small amount of mineral residue behind. There are in this country only two practicable methods of disposing of the dead—namely, by inhumation or earth burial and by cremation. I hope to be able to show that of the two the latter—cremation—is much to be preferred, as being more sanitary, more scientific, and much less repulsive to sentiment. When the movement in favour of cremation was initiated in England about 30 years ago all sorts of objections were raised against it. It was asserted that cremation would create a nuisance and would encourage crime. It was also described as heathenish, revolting, and opposed to Christian teaching. The Cremation Society of England was formed in 1874, with Sir Henry Thompson as president, and it is undoubtedly due to the enthusiasm and dogged perseverance of the society that the change in public opinion has chiefly been brought about. The crematorium at Woking, the first in this country, was erected in 1879, and was for several years the only one in England. In 1892, however, a second crematorium was opened at Manchester, and this has been quickly followed by many others in various parts of the country, until at the present time there are no less than 13. The crematorium in Leicester was opened in 1902 but only one cremation took place in that year. In the following year there were five cremations, then eight, and last year there were 15. Many of these were from neighbouring towns and almost all were of persons belonging to the upper or middle classes, this being the experience everywhere. As the fashion spreads, however, there is little doubt, I think, that the working classes will also avail themselves of it.

CREMATION ABROAD.

In several foreign countries the movement, begun about the same time as in England, is making equal progress. In Germany cremation was introduced in 1878 and is rapidly increasing; according to statistics recently published there are nine crematoriums and 86 cremation societies, with a membership of more than 22,000. The figures are remarkable inasmuch as cremation is forbidden in several of the German States. In the United States of America there are already no less than 26 crematoriums. In France there are four but the one in Paris is used to a far greater extent than the corresponding one in London. In Switzerland there are four and there are two in Sweden and one in Denmark. Other countries which possess crematoriums are Japan, Canada, and Australia, while one is also to be found at Buenos Ayres and one is being established in Bombay by educated Parsees, who object to the present method of exposing their dead on the Towers of Silence. As regards the number of cremations performed in Paris alone the total amounted to 3147 up to the end of the year 1903, and it has since been considerably increased. In the United States of America no less than 3160 took place in one year (1902). In Germany the number in one year (1903) was 1074. In Great Britain there were 604 during 1905, as compared with 566 in 1904 and 476 in 1903, whilst the total for this country since the commencement of cremation up to the end of 1905 was 5020.

COST OF CREMATION AND LEGAL FORMALITIES TO BE OBSERVED.

Cremation is not necessarily so expensive as some people think. The amount of fuel required to consume the human body completely in the latest form of apparatus is only about half a ton of coke, costing a few shillings, and against the cost of fuel there is a set-off in the land required for the grave. The interest and sinking fund on the capital outlay in building a crematorium and cost of up-keep are serious items at present, whilst the number of cremations is small, but they will diminish greatly as the practice becomes popular.

The fees for cremation at the Leicester Crematorium are £2 2s. for a resident of Leicester and £5 5s. for a non-resident. In the case of a poor person the corporation may, if it thinks fit, remit a portion or the whole of this. In addition to the cost of the actual cremation there are the fees for the special medical certificates required by law. At present cremation is unfairly handicapped in this respect as no fee is payable for the nominal certificate of death which is all that is required before burial. There is a great contrast between the stringent precautions insisted upon before cremation and the notoriously inadequate precautions with which the law is at present satisfied before burial. Briefly, the procedure before cremation under the Act of 1902 is as follows:—A statutory declaration has to be made on a prescribed form before a justice of the peace or commissioner of oaths to the effect that there is no known cause why cremation should not take place. Two medical certificates have to be obtained also on prescribed forms, one from the ordinary medical attendant of the deceased and the other—the confirmatory medical certificate—from a medical man who is of not less than five years' standing and holds some official position specified in the regulations, such as medical officer of health, certifying factory surgeon, medical referee under the Workmen's Compensation Act, or physician or surgeon to a hospital. The ordinary medical certificate of cause of death has to be given and the death registered as usual. Lastly, all certificates have to be submitted to the medical referee appointed by the cremation authority under the Act, and no cremation can take place until authorised by him. The medical referee has full power to decline to allow a cremation to take place without stating any reason, and in any case where he thinks it desirable he may require that a post-mortem examination should be made. Although I think that some of the details of this procedure might be simplified with advantage, it is not really so formidable as it sounds, and when all deaths have to be certified properly the difference in trouble between cremation and burial will be less marked.

THE COMPARATIVE ADVANTAGES OF CREMATION.

Arguments in favour of cremation as compared with inhumation may for convenience be divided into two classes—namely, those which are based (1) on sanitary grounds and (2) on sentimental grounds respectively.

1. The practice of inhumation in crowded graveyards in large towns is essentially insanitary and must be a menace to the health of the surrounding inhabitants. As regards intramural interments the revelations which came to light as the result of an inquiry made into this subject some 50 years ago smote the public with such horror that an Act of Parliament was passed prohibiting this form of interment. Of course where cemeteries are formed at a distance from the towns, out in the open country, as is the case at Leicester, the evil is greatly reduced, but the process of decay and corruption still goes on.

In considering the possible influence of a cemetery upon those living in the vicinity I am able to speak with some personal feeling, as my own residence is in close proximity to the Leicester Cemetery, a narrow strip of only 40 yards separating my garden from the cemetery fence. In this cemetery, the subsoil of which is a stiff clay, some 2000 bodies, representing, perhaps, 200 tons of human remains, are deposited every year. As regards any nuisance arising from the process of cremation I can speak from experience, as nearly 40 cremations have already taken place at the Leicester Corporation Crematorium, which is only 300 yards from my house. I have never noticed the slightest nuisance, nor, indeed, from the nature of the apparatus, is any nuisance possible, even if it took place in a crowded neighbourhood. A light puff of smoke when the coffin is first introduced is all that reveals the fact that a cremation is taking place, and even this, I believe, can be overcome.

2. It is sometimes said that popular sentiment is against cremation. No doubt this is so at present, because cremation is new and strange whilst interment is old and familiar; but whoever seriously considers the fate which inevitably befalls the body after it has been placed in its "last resting place" must assuredly admit that, apart from prejudice, sentiment should be in favour of cremation.

THE DISCUSSION.

Alderman A. E. SAWDAY said that personally he was glad that Leicester was in the van of progress with regard to cremation, as he had come to the conclusion that this was undoubtedly the best form of disposing of the dead. So far as the question of cost was concerned the fees fixed by the corporation of Leicester were the lowest that could possibly be arranged without the process becoming a burden on the rates.

Dr. P. BOOBBYER, medical officer of health of Nottingham, said that he was personally in favour of cremation but he felt that it had many serious difficulties to face. From the public health standpoint it was admirable but on sentimental and religious grounds, according to the Church of Rome, and on medico legal grounds, it was, in the opinion of some people, open to great objection.

Councillor G. CHITHAM, the chairman of the corporation burials grounds committee, expressed the hope that the result of the conference might prove useful in bringing about a greater interest in cremation.

Alderman GEORGE CLIFTON, speaking as a medical man and one of the oldest members of the Leicester branch of the National Cremation Society, said with regard to the question of sentiment that the spectacle presented by bodies exhumed after having been buried for some weeks or months was calculated to make the beholders hesitate before wishing their friends to be subjected to earth burial.

Dr. WILLIAM COLLINGRIDGE, Alderman WINDLEY (the chairman of the sanitary committee of the corporation of Leicester), Mr. J. E. WILLCOX, and Mr. W. A. CLARKE (deputy coroner for the borough of Leicester) also took part in the discussion.

After luncheon the members of the institute visited the borough crematorium.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On the General Sanitary Circumstances and Administration of the Rural District of Sleaford, by Dr. L. W. DARRA MAIR.[1]—Dr. Mair gives a surprising account of what passes for "local sanitary administration" in Lincolnshire. The Sleaford rural district, with an area of over 200 square miles, has a total population of some 17,000, mainly grouped in numerous villages on the edge of the Lincolnshire fens. Certain of these villages possess public water-supplies which have been obtained by deep boring into the great oolite or by impounding natural springs. The majority of the villages, however, are in a very unsatisfactory position with regard to water. Some depend upon surface wells situated in shallow patches of gravel overlying a clay soil and liable to serious pollution; others obtain their water from local streams which are contaminated by sewage. Among the latter is the village of Billinghay, where about 1200 inhabitants are dependent for water on dipping places in Billinghay Skirth, many of which are below the outfalls of the local sewers. Similarly the occupants of groups of dwellings near to the River Witham are obliged to draw their supplies from that stream which has already been seriously polluted in its higher reaches. After making allowance for the fact that in some villages where public water-supplies exist the distributing mains are deficient, and thus only a portion of the village gets the benefit of the supply, Dr. Mair reckons that not more than 30 per cent. of the population of the district is supplied with safe water. If, however, the rural council had been guided by, and had taken action on the advice of, its officers "it is probable that nearly 80 per cent. of the population would be so supplied at the present time." Several feasible schemes for the combined supply of villages have been prepared at different times. The main reason for their having come to nothing is that the rural council has for many years been in the habit of regarding water-supply (as also other sanitary matters) as of purely parochial concern. The council consists of 57 members, who meet at Sleaford workhouse once a month after the conclusion of the Poor-law business. This unwieldy body seldom appoints any committee and appears to be content to dispose of all sanitary questions by referring them to the parish councils of the places concerned. Parish councils have, of course, no responsibility in the matter and where the question of combined action in several parishes arises they not unnaturally fail to agree over more or less trivial points, with the result that the district council is furnished with what it regards as sufficient excuse for doing nothing. In 1896 the surveyor reported on the need for a public water service for the neighbouring villages of Great Hale and Little Hale and suggested two alternative schemes for providing both places with a common supply. The report was "referred to the parish councils." Opposition came from both and one of them reported that a parish meeting had been convened at which it was unanimously resolved "that a cistern be built to contain the water running from the parish church (subject to the approval of the vicar and churchwardens) and the ratepayers consider that would be sufficient to supply the village." Both schemes were then allowed to fall through. Subsequently, the parish council in question was sensible enough to prefer the great oolite to the church roof and obtained an abundant supply by deep boring. But the neighbouring village, less than a mile away, was left without water, although, whilst they were about it, both places could have been supplied almost as easily as one. Dr. Mair gives other and equally striking instances of the inefficiency which has resulted from the district council's method of performing or neglecting its duties. One result of the policy of placing the duty of preparing water schemes upon irresponsible parish councils has been the frequent employment of water diviners, whose advice on several occasions has entailed a large amount of boring without finding water. Besides referring to outbreaks of enteric fever which have occurred from time to time in association with polluted water in this district, Dr. Mair draws attention to the insanitary condition of many of the houses and their surroundings and to serious pollution of streams by sewage. There is no public scavenging, even in the larger villages. The duties of inspector of nuisances are performed by the council's surveyor who has but little time to devote to them. Two road surveyors each receive £40 a year in respect of work as "assistant inspectors of nuisances," which in practice they do not perform.

On Sanitary Circumstances and Administration in the Urban District of Abertillery, by Dr. S. W. WHEATON.[2]—This report describes many unsatisfactory conditions met with in an important and growing mining district in Ebbw Vale. Special difficulties, particularly in the matter of water-supply, are created by subsidence of surface due to removal of the underlying coal. The sources of supply are always liable to alteration and the supply obtained from the main waterworks at Cwmtillery has greatly diminished of late. The springs become tapped and drawn into the mines and even the surface of the tops of the hills becomes traversed by deep fissures, so that surface water also finds its way into the mines and is lost for the purpose of water-supply. From the same cause one of the two storage tanks has become cracked and has had to be put out of use, with the result of further curtailing the water available. The supply is intermittent and in many of the dwellings (which usually have no storage cisterns) water is available only for a few hours daily. Moreover, the water-pipes in the upper part of the district during periods of intermission are constantly being sucked dry as a result of water being drawn off at lower levels, so that there appears to be serious risk of insuction of polluting matters through leaks or open taps. While other sanitary defects, notably the bad condition of many of the dwellings, are also in some degree related to subsidence, much of the insanitary character of Abertillery seems to be attributable to local indifference and faulty administration. Builders, for instance, are allowed to put up dwellings of imperfectly burnt bricks, with mortar crumbling and unpointed, with defective roofs, cracked slates, and so on. Yards are badly paved and drained, the yard gullies being often "surrounded by pools of stinking sewage which percolates into the ground near the dwelling," while Dr. Wheaton directs special attention to the filthy condition of many of the slaughter-houses and bakehouses. There is a daily collection of house refuse from pails and iron bins. Difficulty has arisen in disposing of this refuse and a refuse destructor has been suggested. Dr. Wheaton, however, gives a sound reason against this proposal—namely, that owing to the character of the district and the steepness of the roads it would be impossible to continue the daily collection of refuse if all of it had to be taken to a central depôt for destruction. He also criticises the present practice of employing a local medical practitioner at the small salary of £60 per annum to perform the duties of medical officer of

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empty shell from which the spirit—the living and immortal soul—has fled, but the body is, nevertheless, sacred in death as well as in life, and it is surely our duty to provide for its reverent disposal by the method which, in the light of modern science and with due consideration for the interests of the living, appears to us to be the best. The human body, in common with bodies of all living things, must inevitably, sooner or later, undergo disintegration and the highly complex organic substances of which it is composed must eventually be resolved into simpler compounds, such as water and carbonic acid, which are dissipated, leaving only a small amount of mineral residue behind. There are in this country only two practicable methods of disposing of the dead—namely, by inhumation or earth burial and by cremation. I hope to be able to show that of the two the latter—cremation—is much to be preferred, as being more sanitary, more scientific, and much less repulsive to sentiment. When the movement in favour of cremation was initiated in England about 30 years ago all sorts of objections were raised against it. It was asserted that cremation would create a nuisance and would encourage crime. It was also described as heathenish, revolting, and opposed to Christian teaching. The Cremation Society of England was formed in 1874, with Sir Henry Thompson as president, and it is undoubtedly due to the enthusiasm and dogged perseverance of the society that the change in public opinion has chiefly been brought about. The crematorium at Woking, the first in this country, was erected in 1879, and was for several years the only one in England. In 1892, however, a second crematorium was opened at Manchester, and this has been quickly followed by many others in various parts of the country, until at the present time there are no less than 13. The crematorium in Leicester was opened in 1902 but only one cremation took place in that year. In the following year there were five cremations, then eight, and last year there were 15. Many of these were from neighbouring towns and almost all were of persons belonging to the upper or middle classes, this being the experience everywhere. As the fashion spreads, however, there is little doubt, I think, that the working classes will also avail themselves of it.

CREMATION ABROAD.

In several foreign countries the movement, begun about the same time as in England, is making equal progress. In Germany cremation was introduced in 1878 and is rapidly increasing; according to statistics recently published there are nine crematoriums and 86 cremation societies, with a membership of more than 22,000. The figures are remarkable inasmuch as cremation is forbidden in several of the German States. In the United States of America there are already no less than 26 crematoriums. In France there are four but the one in Paris is used to a far greater extent than the corresponding one in London. In Switzerland there are four and there are two in Sweden and one in Denmark. Other countries which possess crematoriums are Japan, Canada, and Australia, while one is also to be found at Buenos Ayres and one is being established in Bombay by educated Parsees, who object to the present method of exposing their dead on the Towers of Silence. As regards the number of cremations performed in Paris alone the total amounted to 3147 up to the end of the year 1903, and it has since been considerably increased. In the United States of America no less than 3160 took place in one year (1902). In Germany the number in one year (1903) was 1074. In Great Britain there were 604 during 1905, as compared with 566 in 1904 and 476 in 1903, whilst the total for this country since the commencement of cremation up to the end of 1905 was 5020.

COST OF CREMATION AND LEGAL FORMALITIES TO BE OBSERVED.

Cremation is not necessarily so expensive as some people think. The amount of fuel required to consume the human body completely in the latest form of apparatus is only about half a ton of coke, costing a few shillings, and against the cost of fuel there is a set-off in the land required for the grave. The interest and sinking fund on the capital outlay in building a crematorium and cost of up-keep are serious items at present, whilst the number of cremations is small, but they will diminish greatly as the practice becomes popular.

The fees for cremation at the Leicester Crematorium are £2 2s. for a resident of Leicester and £5 5s. for a non-resident. In the case of a poor person the corporation may, if it thinks fit, remit a portion or the whole of this. In addition to the cost of the actual cremation there are the fees for the special medical certificates required by law. At present cremation is unfairly handicapped in this respect as no fee is payable for the nominal certificate of death which is all that is required before burial. There is a great contrast between the stringent precautions insisted upon before cremation and the notoriously inadequate precautions with which the law is at present satisfied before burial. Briefly, the procedure before cremation under the Act of 1902 is as follows:—A statutory declaration has to be made on a prescribed form before a justice of the peace or commissioner of oaths to the effect that there is no known cause why cremation should not take place. Two medical certificates have to be obtained also on prescribed forms, one from the ordinary medical attendant of the deceased and the other—the confirmatory medical certificate—from a medical man who is of not less than five years' standing and holds some official position specified in the regulations, such as medical officer of health, certifying factory surgeon, medical referee under the Workmen's Compensation Act, or physician or surgeon to a hospital. The ordinary medical certificate of cause of death has to be given and the death registered as usual. Lastly, all certificates have to be submitted to the medical referee appointed by the cremation authority under the Act, and no cremation can take place until authorised by him. The medical referee has full power to decline to allow a cremation to take place without stating any reason, and in any case where he thinks it desirable he may require that a post-mortem examination should be made. Although I think that some of the details of this procedure might be simplified with advantage, it is not really so formidable as it sounds, and when all deaths have to be certified properly the difference in trouble between cremation and burial will be less marked.

THE COMPARATIVE ADVANTAGES OF CREMATION.

Arguments in favour of cremation as compared with inhumation may for convenience be divided into two classes—namely, those which are based (1) on sanitary grounds and (2) on sentimental grounds respectively.

1. The practice of inhumation in crowded graveyards in large towns is essentially insanitary and must be a menace to the health of the surrounding inhabitants. As regards intramural interments the revelations which came to light as the result of an inquiry made into this subject some 50 years ago smote the public with such horror that an Act of Parliament was passed prohibiting this form of interment. Of course where cemeteries are formed at a distance from the towns, out in the open country, as is the case at Leicester, the evil is greatly reduced, but the process of decay and corruption still goes on.

In considering the possible influence of a cemetery upon those living in the vicinity I am able to speak with some personal feeling, as my own residence is in close proximity to the Leicester Cemetery, a narrow strip of only 40 yards separating my garden from the cemetery fence. In this cemetery, the subsoil of which is a stiff clay, some 2000 bodies, representing, perhaps, 200 tons of human remains, are deposited every year. As regards any nuisance arising from the process of cremation I can speak from experience, as nearly 40 cremations have already taken place at the Leicester Corporation Crematorium, which is only 300 yards from my house. I have never noticed the slightest nuisance, nor, indeed, from the nature of the apparatus, is any nuisance possible, even if it took place in a crowded neighbourhood. A light puff of smoke when the coffin is first introduced is all that reveals the fact that a cremation is taking place, and even this, I believe, can be overcome.

2. It is sometimes said that popular sentiment is against cremation. No doubt this is so at present, because cremation is new and strange whilst interment is old and familiar; but whoever seriously considers the fate which inevitably befalls the body after it has been placed in its "last resting place" must assuredly admit that, apart from prejudice, sentiment should be in favour of cremation.

THE DISCUSSION.

Alderman A. E. SAWDAY said that personally he was glad that Leicester was in the van of progress with regard to cremation, as he had come to the conclusion that this was undoubtedly the best form of disposing of the dead. So far as the question of cost was concerned the fees fixed by the corporation of Leicester were the lowest that could possibly be arranged without the process becoming a burden on the rates.

Dr. P. BOORBYER, medical officer of health of Nottingham, said that he was personally in favour of cremation but he felt that it had many serious difficulties to face. From the public health standpoint it was admirable but on sentimental and religious grounds, according to the Church of Rome, and on medico legal grounds, it was, in the opinion of some people, open to great objection.

Councillor G. CHITHAM, the chairman of the corporation burials grounds committee, expressed the hope that the result of the conference might prove useful in bringing about a greater interest in cremation.

Alderman GEORGE CLIFTON, speaking as a medical man and one of the oldest members of the Leicester branch of the National Cremation Society, said with regard to the question of sentiment that the spectacle presented by bodies exhumed after having been buried for some weeks or months was calculated to make the beholders hesitate before wishing their friends to be subjected to earth burial.

Dr. WILLIAM COLLINGRIDGE, Alderman WINDLEY (the chairman of the sanitary committee of the corporation of Leicester), Mr. J. E. WILLCOX, and Mr. W. A. CLARKE (deputy coroner for the borough of Leicester) also took part in the discussion.

After luncheon the members of the institute visited the borough crematorium.

Public Health and Poor Law.

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health in a district the population of which has already reached 27,000, and suggests combination of Abertillery with Nantyglo and Blaina, and other adjoining districts of Ebbw Vale, for the purpose of employing a medical officer of health to give his whole time to the work. Desirable combinations of this kind have been freely advocated by Local Government Board inspectors in recent years and it may be hoped that the central authority does not intend to be deterred, here or elsewhere, by mere local opposition from giving effect to the important proposals which have been made by its expert staff in the matter.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8943 births and 5157 deaths were registered during the week ending April 7th. The annual rate of mortality in these towns, which had been equal to 15·8 and 17·0 per 1000 in the two preceding weeks, was again 17·0 during the week under notice. In London the rate fell to 16·8, and was 1·8 below that which prevailed in the previous week, and in the 75 large provincial towns the average rate was 17·0. The lowest death-rates in these towns during the week were 8·4 in Willesden, 8·9 in Aston Manor, and 9·3 in Leyton and King's Norton; the rates in the other towns ranged upwards to 23·8 in Reading, 25·4 in Burnley, 27·1 in Warrington, and 28·1 in Middlesbrough. The 5157 deaths in the 76 towns included 457 which were referred to the principal infectious diseases, against 414 and 492 in the two preceding weeks; of these 177 resulted from measles, 133 from whooping-cough, 49 from diphtheria, 48 from diarrhœa, 31 from scarlet fever, 19 from "fever" (principally enteric), but not one from small-pox. No death from any of these infectious diseases was registered during the week in Bournemouth, Ipswich, Norwich, Stockport, Wigan, York, or in seven other provincial towns; while they caused the highest death-rates in Liverpool, Preston, Walthamstow, Smethwick, and Warrington. The highest rates of mortality from measles occurred in Liverpool, Blackburn, Newcastle-upon-Tyne, Walthamstow, and Hornsey; from whooping-cough in West Bromwich, Smethwick, Handsworth, Plymouth, and Warrington; and from diarrhœa in Rochdale and Smethwick. The mortality from diphtheria, scarlet fever, and enteric fever showed no marked excess in any of the large towns. No death from small-pox was registered during the week either in London or in any of the 75 large provincial towns. The number of small-pox cases remaining under treatment in the Metropolitan Asylums Hospitals, which had been ten and eight at the end of the two preceding weeks, were still eight at the end of the week under notice, no new case having been admitted during the week. The number of scarlet fever cases under treatment in these hospitals and in the London Fever Hospital on Saturday April 7th, was 2322, against numbers declining from 2628 to 2386, on the five preceding Saturdays; 292 new cases were, however, admitted during the week, showing an increase of 69 upon the number of admissions in the previous week. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 320 and 337 in the two previous weeks, declined again to 332, but exceeded the corrected average for the corresponding week in the four years 1902–5 by 27. The causes of 54, or 1·0 per cent., of the deaths registered in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, West Ham, Leicester, Nottingham, Salford, Leeds, Newcastle-upon-Tyne, and in 44 other large towns; while excessive proportions of uncertified deaths were registered in Portsmouth, Birmingham, Liverpool, Blackburn, Sheffield, and South Shields.

In 76 of the largest English towns 8055 births and 5200 deaths were registered in the week ending April 14th. The annual rate of mortality in these towns, which had been 17·0 in each of the two preceding weeks, was last week equal to 17·1 per 1000. In London the rate was 17·4, while the average rate in the 75 other large towns did not exceed 17·0. The lowest death-rates in these towns during the week were 8·0 in Willesden, 8·8 in East Ham, 9·2 in Tottenham, and 9·7 in Portsmouth; the rates in the other towns ranged upwards to 22·1 in West Bromwich, 22·6 in Smethwick, 23·1 in Tynemouth, and 25·6 in Liverpool. The 5200 deaths in these 76 towns included 518 which were referred to the principal infectious diseases, against 414, 492, and 457 in the three preceding weeks; of these, 198 resulted from measles, 147 from whooping-cough, 54 from diarrhœa, 51 from diphtheria, 42 from scarlet fever, 26 from "fever" (principally enteric), but not one from small-pox. No death from any of these infectious diseases was registered last week in Hastings, Reading, Norwich, Warrington, West Hartlepool, Swansea, or in four other towns; while they caused the highest death-rates in West Bromwich, Manchester, Rotherham, Leyton, Yarmouth, and Liverpool. The highest death-rates from measles during the week occurred in Bury, Manchester, and Liverpool; from whooping-cough in Cardiff, Bournemouth, Leyton, Smethwick, and West Bromwich; and from diarrhœa in Middlesbrough and Tynemouth. Diphtheria caused three deaths in Sheffield, three in Rotherham, and two both in Bradford and Hull. Three deaths were referred to "fever" in Leeds, and two each in Bradford, Newcastle-upon-Tyne, and Rhondda. No death from small-pox was registered during the week either in London or in any of the 75 other large towns. The number of small-pox cases remaining under treatment in the Metropolitan Asylums Hospitals declined to seven at the end of last week, having been eight at the end of each of the two preceding weeks, no new case having been admitted during the past three weeks. The number of scarlet fever cases under treatment in these hospitals and in the London Fever Hospital on Saturday, April 14th, was 2301, against numbers declining steadily from 2628 to 2322 at the end of the five preceding weeks; 270 new cases were admitted to these hospitals during the week, against 223 and 292 in the two previous weeks. The deaths in London referred to pneumonia and diseases of the respiratory organs, which had been 320, 337, and 332 in the three preceding weeks, rose during the week under notice to 357 and exceeded the corrected average for the corresponding period in the four preceding years by 61. The causes of 60, or 1·1 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Bristol, Nottingham, Manchester, Salford, Bradford, Leeds, and Newcastle-upon-Tyne; whereas the causes of 12 deaths in Liverpool, seven in Sheffield, five in Barrow, and four both in Preston and in Hull were not certified.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 18·0 and 18·9 per 1000 in the two preceding weeks, further rose to 19·4 during the week ending April 7th, and exceeded by 2·4 the mean rate during the same week in the 76 large English towns. The death-rates in the eight Scotch towns ranged from 17·9 and 18·0 in Glasgow and Aberdeen to 22·1 in Greenock, 22·2 in Paisley, and 23·4 in Dundee. The 665 deaths in these eight towns included 20 which were referred to measles, 15 to diarrhœa, 12 to whooping-cough, two to "fever," one each to scarlet fever and diphtheria, and not one to small-pox. In all, 51 deaths resulted from these principal infectious diseases during the week, against 81, 57, and 62 in the three preceding weeks. These 51 deaths were equal to an annual rate of 1·5 per 1000, which corresponded with the mean rate during the week under notice from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 20 and 27 in the two preceding weeks declined again to 20, and included eight in Glasgow, five in Paisley, four in Edinburgh, and three in Dundee. The 12 deaths from whooping-cough exceeded the number in the previous week by one, and included eight in Glasgow and two in Aberdeen. The deaths referred to diarrhœa, which had been 20, 17, and 12 in the three preceding weeks, rose again to 15, and included five in Glasgow and two each in Edinburgh, Dundee, Paisley, and Perth. The two deaths referred to "fever" were returned in Dundee and Greenock. The fatal cases of diseases of the respiratory organs in the eight towns, which had been 124 and 103 in the two preceding weeks, rose during the week under notice to 142, and exceeded by 25 the deaths referred in these towns to the same diseases in the corresponding week of last year. The causes of 20, or rather more than 3 per cent., of the deaths registered in these eight towns were not certified, against 1 per cent. in the 76 English towns.

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Scotch towns, which had been 18·0, 18·9, and 19·4 in the three preceding weeks, declined to 19·1 during the week ending April 14th, but exceeded by 2·0 the mean rate during the same week in the 76 large English towns. The rates in the eight Scotch towns ranged from 11·6 and 14·4 in Aberdeen and Paisley to 20·2 in Leith, 20·9 in Glasgow, and 24·3 in Greenock. The 655 deaths in these eight towns included 23 which were referred to measles, 12 to whooping-cough, 11 to diarrhœa, seven to diphtheria, one to "fever," but not one either to scarlet fever or to small-pox. In all, 54 deaths resulted from these principal infectious diseases last week, against 62 and 51 in the two preceding weeks. These 54 deaths were equal to an annual rate of 1·6 per 1000, which was 0·1 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 27 and 20 in the two previous weeks, rose again last week to 23, of which 12 occurred in Glasgow, six in Edinburgh, three in Dundee, and two in Leith. The 12 fatal cases of whooping-cough corresponded with the number in the previous week, including six in Glasgow, three in Leith, two in Edinburgh, and one in Dundee. The 11 deaths attributed to diarrhœa showed a decline of four from the previous week; seven were recorded in Glasgow, two in Dundee, and one both in Edinburgh and Leith. Of the seven fatal cases of diphtheria, showing an increase of six upon the number in the previous week, five occurred in Glasgow and two in Edinburgh. The deaths referred in the eight towns to diseases of the respiratory organs, which had been 103 and 142 in the two previous weeks, further rose last week to 170 and exceeded by 53 the number returned from these diseases in the corresponding week of last year. The causes of 25, or nearly 4 per cent., of the deaths registered in the eight towns during the week were not certified.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been 23·1, 25·6, and 26·1 per 1000 in the three preceding weeks, declined again to 21·1 during the week ending April 7th, but exceeded by 4 per 1000 the mean rate during the same period in the 76 English towns. During the 13 weeks of last quarter the death-rate in Dublin averaged 22·9 per 1000, whereas during the same period the mean death-rate did not exceed 16·6 in London and 17·4 in Edinburgh. The 153 deaths of persons belonging to Dublin registered during the week under notice were fewer by 37 than the number in the previous week and included but four which were referred to the principal infectious diseases, against ten in the preceding week; of these, two resulted from whooping-cough and one each from measles and diarrhœa. The four deaths from these infectious diseases were equal to an annual rate of 0·6 per 1000, against 1·6 and 1·5 from the same diseases in the week under notice in London and Edinburgh respectively. The two fatal cases of whooping-cough in Dublin corresponded with the number in the previous week; and the death from measles was the first recorded in the city since the beginning of the year. The 153 deaths registered in Dublin included 22 of infants under one year of age and 47 of persons aged upwards of 60 years; both these numbers showed a marked decline from the numbers in recent weeks. Four inquest cases and two deaths from violence were registered; and 62, or no less than 41 per cent. of the 153 deaths, were recorded in public institutions. The causes of nine, or nearly 6 per cent., of the deaths registered in Dublin during the week under notice were not certified.

The death-rate in Dublin, which had been 25·6, 26·1, and 21·1 in the three preceding weeks, rose again to 23·4 in the week ending April 14th. During the 13 weeks of last quarter the death-rate in the city averaged 22·9 per 1000, whereas the mean death-rate during the same period did not exceed 16·6 in London and 17·4 in Edinburgh. The 170 deaths of persons belonging to Dublin registered during the week under notice showed an increase of 17 upon the number returned in the previous week, and included six which were referred to the principal infectious diseases, against ten and four in the two preceding weeks; of these, three resulted from whooping-cough, one each from measles, "fever," and diarrhœa, and not any from either small-pox, measles, or diphtheria. The six deaths from these infectious diseases were equal to an annual rate of 0·8 per 1000, the death-rate last week from these diseases being 1·6 in London and 1·7 in Edinburgh. The three fatal cases of whooping-cough in Dublin exceeded the numbers in recent weeks. The 170 deaths included 21 of infants under one year of age and 53 of persons aged upwards of 60 years; the deaths of infants showed a further decline from the numbers in recent weeks, while those of elderly persons showed an increase. Six inquest cases and three deaths from violence were registered; and 71, or 42 per cent., of the 170 deaths were recorded in public institutions. The causes of seven, or more than 4 per cent., of the deaths registered during the week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: E. St. M. Nepean to the *Empress of India*; J. Bradley to the *Royal Oak*; H. W. Macnamara to the *Auryalus*; W. G. Stott to the *Acheron*; J. Jenkins to the *Hood*; W. J. Colborne to the *Russell*; and G. T. Collingwood to the *President*, additional, for three months' hospital course. Staff Surgeons: C. J. E. Cock to the *Thetis* and to the *Perseus*, on recommissioning; H. H. Pearse to the *Vernon*, additional, for the *Furious*; W. K. Hopkins to the *Victory*, for Portsmouth Dockyard; C. L. W. Bunton to the *Triumph*, on recommissioning; H. E. Tomlinson to the *Bedford*; and J. E. H. Phillips to the *Royal Arthur*. Surgeons: R. L. Dickinson and A. G. Eastment to the *Pembroke*; W. L. Hawkins to the *Leda*; F. J. Gowans to the *Triumph*; A. D. Spalding to the *Queen*; G. E. Hamilton to the *Vengeance*; W. N. Horsfall to the *Euryalus*; C. A. G. Phipps, to be lent to the *Trafalgar*; G. S. Davidge to the *Thetis*; E. P. G. Causton and J. Verdon to the *Pembroke*, for disposal; and W. N. L. Cherry to Royal Marine Division, Chatham.

ROYAL ARMY MEDICAL CORPS.

Captain M. F. Foulds, from Jubbulpore Brigade, is posted to the Bombay Brigade. Colonel D. Bruce, C.B., of the Army Medical Service Advisory Board, is ordered to Malta for duty with the Mediterranean Fever Commission. Colonel A. T. Sloggett, C.M.G., P.M.O., London district, proceeds to Lisbon to attend the International Congress of Medicine as English delegate. Major T. H. F. Clarkson is appointed Medical Officer at the Tower of London.

MILITARY HYGIENE AT ALDERSHOT.

A school of military hygiene has been established at Aldershot under the direction of Lieutenant-Colonel R. H. Firth, R.A.M.C., for the instruction of regimental officers and soldiers. Its aim and object is not only to acquaint them generally with the elementary principles and laws of hygiene but to point out at the same time in a simple and practical way the causes of disease in the army and how best to guard against them. We are very glad that a beginning has been made in what promises to become an extremely useful and desirable object, for, practically speaking, very much depends upon the officers and men of our army, especially on field service, understanding and taking sanitary precautions in sufficient time to make them effective.

THE NAVAL MEDICAL SUPPLEMENTAL FUND.

At the quarterly meeting of the directors of the Naval Medical Supplemental Fund held on April 10th, Sir J. Dick, K.C.B., being in the chair, the sum of £55 was distributed among the several applicants.

LEGISLATION IN REGARD TO CHILDREN.—A conference on legislation in regard to children will be opened by the Lord Mayor at the Guildhall, London, on May 22nd and will be continued on the following day. It has been convened by the committee of the International Congress for the Welfare and Protection of Children held in London in 1902 under the patronage of His Majesty the King and H.R.H. the Princess Louise, Duchess of Argyll, with a view to the discussion, in the light of their latest developments, of certain questions which were dealt with at the Congress. It will be attended by members of county councils, boards of guardians and other public authorities, magistrates, school managers, teachers, and those engaged in private charitable effort. The following subjects will be considered in all their aspects alike as to principles and details: (1) the free feeding of school children; and (2) children's courts, probation officers, and remand homes. The secretary of the executive committee of the conference is Mr. W. G. Lewis, barrister-at-law, 8 Wells-street, Gray's Inn-road, London, W.C.

Correspondence.

"Audi alteram partem."

ON THE PHYSIOLOGICAL DIVISION OF THE PREGNANT UTERUS.

To the Editors of THE LANCET.

SIRS,—In vindication of my claim to originality in the description of the physiological division of the pregnant uterus and its bearing upon the management of labour, I venture to intrude this short note upon THE LANCET. Dr. G. F. Blacker, in his excellent article on the Management of the Third Stage of Labour,[1] makes the following statement: "The upper uterine segment is from two to three times thicker than the lower uterine segment and the site of the ring of Bandl, the so-called retraction ring or the line of union between the two segments, is now apparent." From this it seems that Dr. Blacker has fallen into the error of assigning to Germans the discoveries of Englishmen. The first description of the uterus in its bearing on placenta prævia was made by me in THE LANCET in 1847 and more fully in the publication of my Lettsomian lectures in 1857, and it has been frequently discussed by me on subsequent occasions. The fundamental idea of my theory has been generally adopted. The uterus was divided into three zones: (1) the upper or fundal; (2) the equatorial; and (3) the lower. The fundal zone is divided from the equatorial by an imaginary line, the upper polar circle. This line had not been anatomically demonstrated by anyone but myself. But it seems to mark a distinction which, I believe, is real, between the properties of the upper and lower zones in their relations to placental attachment and to hæmorrhage. The equatorial zone is divided from the lower zone by a line, "*Barnes' boundary line*, 1847–1857," and since distinguished as *Braune's os internum*, 1872, as *Bandl's ring*, 1876, and more recently as *Schroeder's contraction ring*. If priority of discovery and publicity justify a claim to originality I am entitled to protest against the substitution of the term *Bandl's ring* for *Barnes' boundary line*.—I am, Sirs, yours faithfully,

April 16th, 1906. ROBERT BARNES, M.D. Lond.

THE WORKMEN'S COMPENSATION BILL.

To the Editors of THE LANCET.

SIRS,—The Workmen's Compensation Bill having now passed the second reading I append extracts from the printed Bill of such paragraphs as will affect the medical profession. It will be noticed that the medical referees, if the Bill passes in its present form, will be required to give their services on certain occasions instead of being entirely unemployed as under the Act of 1897, for in Paragraph (15) of the first schedule, Subsection (*b*), the "may" which made the Act abortive is changed to "shall." In Subsection (*a*), however, there is still a "may" and also in Paragraph (15) of the second schedule there is "may" again, and unless these "mays" are altered to "shalls" the functions of the medical referees will be curtailed—that is, if the experience of the last seven years is any guide to the attitude of county-court judges to the question of medical referees. It will be seen also that the whole status, remuneration, and methods of performing the examinations they may be called on to make of medical referees will be subject to the regulations made by the Secretary of State. I feel quite sure, however, that before these regulations are made the Secretary of State will have before him full information and that the regulations will harmonise with the ethics of the profession.

I am, Sirs, yours faithfully,

ALBERT BENTHALL, F.R.C.P. Edin.

Haverstock-hill, N.W., April 12th, 1906.

Extracts from the Workmen's Compensation Bill, 1906.

II. (1) The Secretary of State may appoint such legally qualified medical practitioners to be medical referees for the purposes of this Act as he may with the sanction of the Treasury determine, and the remuneration of, and other expenses incurred by, medical referees under this Act shall, subject to regulations made by the Treasury, be paid out of moneys provided by Parliament.

First Schedule.—Scale and conditions of Compensation.—(4) Where a workman has given notice of an accident he shall, if so required by the employer, submit himself for examination by a duly qualified medical practitioner provided and paid by the employer, and if he refuses to submit himself to such examination, or in any way obstructs the same, his right to compensation, and any proceeding under this Act in relation to compensation, shall be suspended until such examination has taken place.

(14) Any workman receiving weekly payments under this Act shall, if so required by the employer, from time to time submit himself for examination by a duly qualified medical practitioner provided and paid by the employer. If the workman refuses to submit himself to such examination or in any way obstructs the same, his right to such weekly payments shall be suspended until such examination has taken place.

(15) A workman shall not be required to submit himself for examination by a medical practitioner under paragraph (4) or paragraph (14) of this schedule otherwise than in accordance with regulations made by the Secretary of State, or at more frequent intervals than may be prescribed by those regulations. Where a workman has so submitted himself for examination by a medical practitioner and the employer has within six days after such examination furnished the workman with a copy of the report of that practitioner as to his condition, then in the event of no agreement being come to between the employer and the workman as to the workman's condition or fitness for employment, the registrar of the county court on application being made to the court by either party: (*a*) may, on payment by the applicant of such fee not exceeding two pounds as may be prescribed in the case of a submission for examination under paragraph (4) of the schedule; and (*b*) shall without any fee in the case of a submission for examination under paragraph (14) of this schedule, refer the matter to a medical referee. The medical referee to whom the matter is so referred shall, in accordance with regulations by the Secretary of State, give a certificate as to the condition of the workman and his fitness for employment, specifying, where necessary, the kind of employment for which he is fit, and that certificate shall be conclusive evidence as to the matters so certified. If a workman on being required so to do refuses to submit himself for examination by a medical referee to whom the matter has been so referred as aforesaid, or in any way obstructs the same, his right to compensation, and any proceeding under this Act in relation to compensation, or in the case of a workman in receipt of a weekly payment his right to that weekly payment, shall be suspended until such examination has taken place. Rules of court may be made for prescribing the manner in which documents are to be furnished or served and application made under this paragraph and the forms to be used for those purposes and, subject to the consent of the Treasury, as to the fee to be paid under this paragraph.

Second Schedule.—Arbitration.—(15) Any committee, arbitrator, or judge may, subject to regulations made by the Secretary of State and the Treasury, appoint a medical referee to report on any matter which seems material to any question arising in the arbitration.

[1] See THE LANCET, April 14th, 1906, p. 1022.

ANTERIOR OR POSTERIOR GASTRO-JEJUNOSTOMY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of April 14th, p. 1071, Mr. B. G A. Moynihan asks, "Is there any surgeon who has a moderate experience of both operations who prefers the anterior method?" As one who possesses such experience I reply to his query in the affirmative. I have repeatedly practised the posterior no-loop method with uniformly good results. I have also in a very much larger number of instances performed the anterior operation and I prefer it. Like Mr. Moynihan, I have no cases of regurgitant vomiting nor do I think this untoward sequel will occur after the anterior operation if the jejunum is fixed to the stomach for a short distance beyond either end of the anastomotic opening. I attach some importance to the position of the opening in the jejunum, making it midway between the mesenteric and anti-mesenteric borders on the right side of the intestine. This position allows the jejunum to be applied to the stomach without twisting it on its longitudinal axis. It is claimed for the posterior method that it gives a dependent opening; so does the anterior operation if this opening is made, as it should be, flush with the great curvature. To secure this it is permissible to ligature one or more of the vessels running over the lower part of the anterior wall of the stomach.

I have no experience of post-operative jejunal ulceration in a series of more than 100 anterior gastro-jejunostomies, but I freely admit that, according to our present views of the causation of this undesirable sequel, it should occur less frequently after the posterior operation. On the other hand, the anterior method is simpler and therefore easier to perform; it involves less exposure and handling of the transverse colon and omentum and a smaller risk from shock and peritoneal soiling, and in the event of peritoneal infection it permits of direct drainage, whereas in the posterior method the operator has "burnt his boats" should this dire calamity supervene. Both operations when properly performed give admirable results and are wonderfully safe; indeed, it may be permitted to doubt whether there is much to choose between them, and what there is is probably overshadowed by the

personal equation of the operator. Most will agree that, other things being equal, simplicity counts for something in surgery, and it is the greater simplicity of the anterior operation which appeals to me.

I am, Sirs, yours faithfully,

Sheffield, April 14th, 1906. SINCLAIR WHITE.

IN PRAISE OF RUM AND MILK.

To the Editors of THE LANCET.

SIRS,—In the midst of the clamour and distracting claims of the advocates of whisky and brandy, of wine and bitter beer, of "pot stills" and "patent stills," and of endless other forms and devices of alcohol, to be used for strictly medical purposes only, I venture to put in a word on behalf of my venerable old friend, good Jamaica rum. Not, be it remarked by way of *caveat*, in its natural and unregenerate state—for even reforming "Jack" is giving it up as a beverage and finds he is much better without it—but when married to milk, in a combination which, like all well-assorted unions, brings out to advantage the good qualities of both parties to the alliance. A pretty long experience of the virtues of this ancient preparation emboldens me to say that if doctors who find it necessary to prescribe alcohol as a stimulant to their patients, for which purpose it is often invaluable, would do so in the form of rum and milk there would be far less risk than there is with other alcoholic beverages of the use of the remedy being perpetuated as an indispensable indulgence. There is no form in which alcohol is so easily tolerated by even the most fastidious stomach as in that of rum and milk and the indigestion must be a very hopeless one which will not yield to a diet of a small cup of warm milk to which a teaspoonful of rum has been added, followed by a plain biscuit or two and some very mild cheese, paradoxical as this combination may seem.

I know that many people, especially those of superfine taste and with fancied delicacy of digestion, will exclaim when such a diet is prescribed to them that they cannot abide either rum or cheese. And I must confess that there is rather a haze of vulgarity about both of them. But apart from this very venial defect, which might be cured by dubbing one *lait au rhum* and the other *fromage dyspeptique*, the cause of their dislike probably is that they have been in the habit of taking too much of them or not taking them in a judicious form. Taken wisely and not too well they will be found hard to beat, by the dyspeptic as well as by the convalescent from sickness, for use as a happy combination of stimulant and nutriment which is much less costly and more sustaining than any of the numerous alcoholic "pick-me-ups" which are now so sedulously forced under the noses of the profession.

I am, Sirs, yours faithfully,

Gloucester, April 14th, 1906. FRANCIS T. BOND, M.D. Lond.

THE STATUS OF THE HAMPSTEAD GENERAL HOSPITAL.

To the Editors of THE LANCET.

SIRS,—Will you allow me to supplement your annotation regarding the above with a little more detailed information for the benefit of your readers, as I think they are likely to gather an incorrect impression from it? Although the hospital has recently been moved into larger and more suitable buildings than those formerly occupied there has hitherto been no change made in its constitution and management. For the past 12 years the hospital has drawn its patients from "Hampstead, Highgate, Hendon, and the adjoining neighbourhood," the latter including Gospel Oak and West Hampstead. The out-patient department has been in existence for over ten years, and there have been free beds as well as contributory beds for 12 years. With regard to these latter, I believe this institution is the pioneer of what I venture to hope may become the common practice in all London hospitals, with the exception of the 13 teaching hospitals—viz., the *establishment of contributory beds with the right to the patient to bring in his own doctor* to attend him, it always being understood that inquiry is made of the patient as to his means, on the one hand, and, on the other, that the doctor partakes in the giving of charity by meeting the means of the patient in the matter of fees. I believe this arrangement if adopted universally would meet Mr. Sydney Holland's views without founding any new institutions for the purpose.

Further, we have had inquiry made into the means of those applying for out-patient relief for the last eight years. Those families in which the total wage-earnings amount to 5*s.* per head per week or under are considered suitable cases; where this basis is exceeded each case is considered upon its merits; those deemed unsuitable are referred to the provident dispensaries or sent back to their private medical attendant. Since the dispensary patients get no benefit until they have been members for a month, and since the majority of such cases as we send on cannot pay the 5*s.* demanded by them to secure immediate attendance, it is arranged that they may attend the hospital during that month provided they bring evidence to show that they have joined the dispensary, and then at the end of the month they are sent over to the dispensary medical officer with a letter saying what has been done for them. Such a system is, I imagine, only possible in a small out-patient department. I fear that Mr. Humphreys will have conveyed to your readers in his letter of a week or two ago that we have a vast army of out-patients attending the hospital. That is not so; and I believe that it is entirely due to the inquiry and the letter system in vogue that the numbers are kept down. It seems, in my opinion, to be the only good point to be said in favour of any letter system that the difficulty of getting letters tends to keep the numbers down. Last year the out-patients numbered 1756; accidents, 546; and dental cases, 91. The total attendances made were 7550. Those who know the number of attendances at a respectably sized out-patient department in London will agree with me that 20,000 is a very ordinary number and therefore we are well below the mark. Assuming, therefore, that out-patient departments are permissible in hospitals I submit that there is not a *casus belli* upon this point in connexion with the Hampstead General Hospital.

As to casualties, the following regulation is in force:—

> Casualty cases are to comprise only urgent medical and surgical cases. Such cases are to be attended for two days only and to be then referred to the out-patient department and directed to procure letters for the same or a doctor's visiting card in lieu thereof.

This has been in force since November, 1902, and these cases are questioned as to means when they come under the inquiry officer in the out-patient department. With regard to "the comparatively well-to-do patients" which you suggest inhabit the wards of the hospital I can assure you, from my experience in other institutions, that our patients are of the usual type found in metropolitan hospitals, no better and no worse.

I hope your readers will infer that beyond increasing the number of available beds the move into the new buildings has not so far led to any changes which justify the phrase, "it has now developed into a general hospital." It has been a general hospital, in fact, for the past 12 years, though the actual name was only adopted a few years back and then for good reasons. I regret that my amendment was not carried at the recent meeting of the division of the British Medical Association to which you refer. There appears to be a reform party who aim at abolishing all out-patient departments in London. I cannot agree with that policy nor can I understand why they have commenced their operations with one of the smallest and least abused out-patient departments in London. I do not yet know which institution will be the next one to come under the ban, but with yourselves, doubtless, will await the disclosure with interest.

I am, Sirs, yours faithfully,

Belsize-park, N.W., April 17th, 1906. LEWIS G. GLOVER.

A COUNTERBLAST TO TOBACCO.

To the Editors of THE LANCET.

SIRS,—The proposed legislation, so far as I can see, would not stop juvenile smoking. Boys would smoke in the streets as they do at present and no one would have any right to interfere with them. No conviction of a seller would be possible except from the evidence either of the purchaser himself or of a bystander and such evidence would rarely be procurable. The bystander would be easily eliminated from the transaction and the juvenile smoker might be trusted not to dry up the sources of his illicit gratification. A legislative assembly capable of passing such an enactment might rightly be called the grandmother, rather than the mother, of Parliaments and would be doing pretty nearly as much as was

possible within the four corners of a single Act to bring all law and order into disrepute. The most effective methods of preventing juvenile smoking would be those adopted by that able officer of His Majesty's navy, Mr. Falcon, as recounted by Peter Simple, but it is to be feared that modern sentiment would not allow such obvious interference with the liberty of the subject.

Apart from the futility of the particular measure the question of the desirability of interference with juvenile smokers, and especially of interference to be confined within a new and arbitrary age limit, is one that calls for careful consideration. If there is to be interference at all, why should it cease at the age of 16 years and why should it not extend to the period at which young people become legally independent and responsible in all other directions? The sole basis of the proposed legislation is that smoking is believed to be injurious to the bodies of the immature, just as extravagance would be injurious to their estates. A minor is not allowed by law to dissipate his estate; why should he be allowed to persist in an indulgence which would dissipate his health? The positive evidence which we possess of the poisonous action of tobacco is mostly, if not entirely, furnished by adults. The subjects of tobacco blindness are usually men in middle life and it is, perhaps, rare to recognise tobacco as a cause of any definite ailments under 30 years of age. Lord Roberts has recently sent a message to the boys of Birmingham in which he tells them that they cannot be "thoroughly fit" if they begin smoking when they are growing lads. He adds that smoking affects the nerves and prevents a boy from becoming a good rifle shot. It affects the heart and may render the boy incapable of undergoing the hardships of active service when he is grown up. Lord Roberts, no doubt, is absolutely convinced of the accuracy of these statements, and I am so far from desiring to question them that I think they are very probably well within the truth. But if they are true for growing lads they are probably true also, if possibly in a less degree, for adults. Lord Roberts advises boys not to smoke until they have passed the age of 18 years, while Dr. Macnamara's Bill would fix 16 years as the age for commencement. What is the evidence in favour of either limit? or what reason is there to believe that a practice which is injurious at 17½ years of age would be harmless or even beneficial six months later?

Are we not in need of careful physiological inquiry into the action of tobacco, and do we really know much about it beyond the admitted facts that it is highly injurious in a certain proportion of smokers, and apparently harmless to the majority, who, moreover, would not pursue an expensive habit unless they derived some sort of gratification from it? Many persons are of opinion that a race which had grown up outside the influence of narcotics would be in every respect better, stronger, more capable, and, in a word, more manly, than a race which had become dependent upon them; and it is certain that history would not assign to the users of such agents a high position among the rulers of the world. Looking beyond quite modern times, the Turks have been the greatest consumers of tobacco and the Hindoos and Chinese of opium, and the examples set by these nations are not entirely encouraging to those who follow them. Neither the heavy smokers of our own day nor the habitual consumers of morphine, of cocaine, or of other vegetable narcotics are likely to be largely contributory to the success of the Imperial idea, and if we put aside preconceptions arising from personal tastes or social habits it is difficult not to conclude that the undrugged man is likely to be in all respects better than the drugged one. The history of opinion upon the subject is far from being satisfactory and it is high time that opinion was replaced by knowledge. A physiological inquiry into the action of tobacco, if carefully and impartially conducted, would be likely to furnish results of much practical value to mankind.

I am, Sirs, yours faithfully,

April 9th, 1906. F.R.C.S.

THE ARMY MEDICAL RESERVE.

To the Editors of THE LANCET.

SIRS,—The idea of forming a Royal Army Medical Corps reserve out of young surgeons who would be obliged to go through a definite course of training may be a very good one, although it remains to be seen how the method will work when put into operation, the first essential to its origin being the supply of men to train. Will enough men be found to devote the time not only for initial but for annual training? For as years went on medical men would not find it easy to leave their work for a month in the year to be devoted solely to military reserve training. But what about the hundreds of civil surgeons who went through a long training and gained experience in the South African war? Why is there no scheme to utilise the services of men who received not one month in a year but 12 months or more of active service abroad? It cannot be that these were of no use and that they did not gain experience. It would appear that there is a reserve ready made if the War Office would but bring it out—at least, amongst such men as obtained satisfactory reports for services rendered. The War Office should have created a strong Royal Army Medical Corps reserve after the South African war of men who had seen hard and long training and service.

I am, Sirs, yours faithfully,

April 9th, 1906. WAR DOG.

THE FIFTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

(FROM OUR SPECIAL COMMISSIONER.)

Lisbon, April 12th.

WHAT THERE IS TO BE SEEN AND STUDIED AT LISBON.

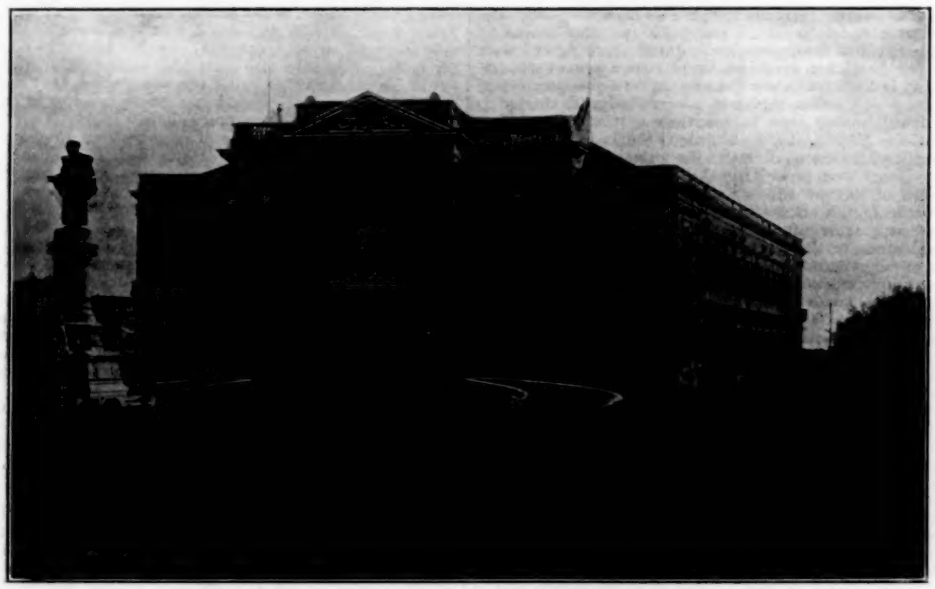
THE members of the International Congress of Medicine will find that apart from the debates and business of the 17 sections there is much to observe and study in Portugal. All travellers have admired the beauty of the site, the aspect of the seven hills now comprised within the extended boundary of Lisbon, and the majestic expanse of the Tagus, with its many ships of war and of peace lying at anchor in front, and, as it were, at the very feet, of the ancient capital. The quaint, steep, winding, narrow, old streets, the broad tree- and flower-planted modern avenues, these and many other characteristic features of the capital of Portugal will not fail to charm and to impress the visitor. But apart from such general attractions the members of the Congress will find a great deal that is of special technical interest to them as medical men and as sanitary reformers.

It is, indeed, curious how little seems to be known in England about Portugal. Certainly it is but a small country, yet in the periodical literature of England, the newspapers and the magazines, articles and dissertations abound about such small countries as Holland, Belgium, and Switzerland. On the other hand, Portugal is but rarely mentioned. Perhaps the Fifteenth International Congress of Medicine will help to remedy this omission. If the members can only find time to go about and to investigate some special questions, to visit some of the institutions in which they are particularly interested, they will discover that in many respects Portugal is quite abreast of the times. It may even be said that in some important matters Lisbon leads the way. For instance, how much London would gain if it possessed a model slaughter-house such as that which was built long ago at Lisbon. How extremely interesting also is the long and arduous struggle of the authorities to secure cheap and wholesome meat for the people. Some years ago the cattle-dealers formed a "ring" or "combine" so as to control the market. Instead of competing with one another they agreed to pay less for cattle and to increase the sale price of meat. Thus they won on both sides and this at the cost of the cattle-breeders and of the consumers of meat. Thereupon the municipality thought it would break up this "combine" by itself buying cattle and selling meat. Municipal butchers' shops were therefore opened in various parts of the town and even hawkers were sent round to sell the municipal meat on barrows. The cattle-breeders, however, failed to appreciate this action, though it was intended to protect their interests. Instead of supporting the municipality they allied themselves with the cattle-dealers and so arranged matters that the municipality had to pay a very high price for the cattle which it bought; on the other hand, as the municipality sold the meat very cheaply it soon incurred a heavy loss. But the greatest disappointment of all was the fact that hardly any poor people profited by this action; they rarely got hold of any of the municipal meat. It was for the most

part bought up by hotel keepers and people who were rich enough to bribe the intermediaries. A special municipal committee was then appointed to investigate the question.

After a long inquiry the present system was instituted. A sort of monopoly was offered and tenders were invited. The concessionaire or monopolist would be the sole person authorised to buy cattle, but, on the other hand, he had so to arrange matters that the meat could be retailed to the public at an average price of about 10*d*. per pound. A regular tariff is established in regard to the various parts of meat and the retail price at which it is to be sold. The number of butchers' shops allowed is limited and the police watch constantly to see that the meat is sold at the prices fixed by the tariff. But the object was not only to prevent such speculations and combinations as would tend to increase the retail price of meat; it was also thought desirable to encourage the home breeders of cattle. Therefore the concessionaire was also bound down by the terms of the contract to purchase his cattle from the Portuguese cattle-breeders. If, however, through some exceptional or other circumstance—the shortage of supply or the outbreak of cattle disease—Portuguese cattle becomes too dear for the meat to be retailed at the regulation price then the concessionaire is allowed to import cattle from abroad and this without having to pay any duty. Finally, in case of extreme emergency, the importation of frozen meat would be sanctioned. But this latter contingency is considered so improbable and viewed with so much dislike that no cold storage rooms exist at the slaughter-house. It would be necessary to build such places before frozen meat could be imported. Therefore visitors to Lisbon will enjoy fresh meat and will not be called upon to eat any cold storage meat.

In this arrangement, however, two important and dominating factors were not taken into consideration. It was forgotten that as it was almost impossible to prevent Spanish cattle straying over into Portugal and Portuguese cattle wandering away into Spain, causing any amount of frontier disputes and "incidents," a treaty had been concluded abolishing all duties on cattle between the two countries. The second omission was that no account was taken of the varying value of gold. Some years ago, when Portuguese credit was at a low ebb, the Spaniard, with cheaper gold, had every advantage in buying cattle in Portugal. But in time the conditions altered, gold became cheaper in Portugal; there was a moment during the war between Spain and the United States of America when gold was at 100 per cent. premium in Madrid, and even to-day it is at 30 per cent. premium. Therefore it is the Portuguese who have every advantage in buying Spanish cattle, particularly if these can be passed off as Portuguese cattle and sold at the enhanced price artificially created so as to encourage cattle breeding in Portugal. Thus now a great discussion has arisen as to what constitutes a cattle breeder. There is a cattle market not far from the slaughter-house. Here there is, and can be, only one purchaser, but there are many to sell. Here the live cattle are inspected by veterinary surgeons and the one purchaser has every interest to see that cases of disease are detected; he has also every interest to prove that the cattle are not home bred, because if there are not enough Portuguese cattle he may bargain and beat down the price of imported cattle. Having secured the necessary amount of cattle the concessionaire has to hand them over to the municipal authorities at the slaughter-house and pays them for killing. This, from the public health point of view, is the most important part of the proceeding. All the slaughterers, all the workers who prepare the meat and carry out the multifarious other processes connected with the killing of animals for food, are employed by the municipality. No one has any interest to serve in saving from destruction any unwholesome meat. The retail butcher, who, by the way, is not a butcher since he does not kill, has every interest in having only sound meat, since it does not come from his own cattle. The butcher has no cattle, he is simply a tradesman, and his only interest is in so satisfying his customers so as to keep them and increase their number. Thus it will be seen that, whatever criticism may be made of the present system, it in any case contributes very materially to secure wholesome food for the public. The concession described above, it must be added, only applies to cattle that produce beef and veal. For hogs and sheep anybody may buy or sell, but no one must kill. If an individual was to kill his own pig or sheep he would be severely punished. At the municipal slaughter-house only, and by the municipal employees, is the killing of any animal for food allowed. No one may do this work who has the slightest interest in passing on to the public unwholesome meat. The consumption of meat at Lisbon amounted in 1898 to an average of 31·7 kilogrammes per inhabitant. In



The School of Medicine, Lisbon, where the Congress holds its meetings.

a special study on the hygiene of slaughter-houses I hope to describe in detail the technicalities of the Lisbon slaughter-house together with the abattoirs of several other towns. This will form part of the controversy in regard to the Chicago stockyards. For the moment I will only say that all members of the International Congress of Medicine who take an interest in such public health questions should not fail to visit the model abattoir of Lisbon. They will be all the more surprised with the excellence of the arrangements, the abundance of space, air, and light, when informed that this is no new institution but was built so far back as 1871.

To assist such inquiries the organisers of the Congress have just published an excellent medical guide to Lisbon. Of the map which it contains mention has already been made and there is an excellent index, so that the information desired can be obtained in a moment. First we find statistics as to the climate, followed by vital statistics. In 1886 ten surrounding parishes were added to the city, thus raising the pupulation from 187,404 to 242,297 according to the census of 1878, but in October, 1905, independence was restored to a couple of these parishes, reducing the population of the capital from 311,206 to 298,903 according to the census of 1890. The census of 1900 puts the population down at 356,000, therefore there has been a rapid increase. The death-rate is high, particularly if we consider that the birth-rate does not amount to quite so high a figure. The births were equal to 28·34 per 1000 and the deaths to 26·49 per 1000 of the population. But if these figures were given per district it would be found that a great excess of mortality is confined to the old and picturesque quarters of the town which remain to-day in a condition very similar to that in which they were in the time of the Moors. This district, the Alfama, stretches towards the Tagus on the side of the hill where there still stand the walls of the castle built by the Moors and is well worth a visit. It is a veritable labyrinth of narrow winding streets and ramps or stairs. The inside of the houses is often very dirty but it will be found that greater care is bestowed on the bedding than in the bad slums of the great towns of England. The love of ornamented or embroidered pillow-cases and of clean, attractive bedding is a very estimable characteristic even of the very poorest classes in Portugal. The municipality, on its side, endeavours to sweep out these narrow, unwholesome streets very frequently, but all this is insufficient to counteract the havoc wrought by poverty and ignorance, by overcrowding, and by the want of light and air. The narrowest street I saw was the Beco da Bicha, which gives into the Rua Ste. Michel. It was certainly not more than two feet wide and two people going in contrary directions could not pass each other. Close by, such streets as the Beco dos Captivos or the Beco de Formosa are about four feet wide, so that circulation in both directions is quite feasible. It is this quarter which supplies the largest contingent of cases of tuberculosis.

Appropriately situated on the main road that runs by the waterside and forms the limit of this very poor quarter is one of the five economical kitchens which constitute a very remarkable institution, well worthy of study on the part of the British visitors whose minds have of late been disturbed by what has been said concerning the physical degeneration of the British race and the 12,000,000 British subjects who were stated to be living on the verge of starvation. Here in a spacious hall are many tables and a counter behind which there is a large, bright, clean kitchen. The poor man can come here and Sisters of Mercy will serve him with a mugful of good, wholesome, pure wine and a large piece of bread for 30 reis or about 1½*d*. This is the poorest meal contemplated by the establishment. To be reduced to wine and bread is to be reduced to the lowest stage of poverty, a fact well worth noting by those who have grasped the significance of the action of the French Government in abolishing, as a measure for the promotion of temperance, all taxation on cheap "hygienic drinks," light wines being the principal of such beverages. But in Portugal such taxation is not yet abolished and the natural wines of the country have to pay an *octroi* duty of 1½*d*. the litre to enter the city of Lisbon. It is estimated that the *octroi* duties amount to an average of £1 10*s*. per annum per inhabitant of the city. That is why, even in this charitable institution, a mugful of wine, containing a little less than half a pint, costs as much as 1*d*. For the same price a very large bowl of soup is served and for 2*d*. quite a sufficient helping of meat with rice, or beans, or potatoes is given. Thus a complete meal of wine, bread, soup, meat, and vegetables can be obtained for 100 reis or about 5*d*. On this, however, the institution loses heavily. That it is highly appreciated by the poor is proved by the fact that from 4000 to 6000 meals are served daily at each of the five establishments and this could not be done but for extensive charitable subscriptions.

The bad state of the drainage is undoubtedly one of the causes of the high mortality rate. The sewers are very old and defective and many houses have soil pipes that are neither trapped nor ventilated. These houses therefore become sewer ventilators and, considering that the sewers are the reverse of self-cleansing, it is easy to understand that the sewer air drawn inside the dwelling tends to lower the vitality and to predispose the inhabitants to many dangerous forms of disease. Several vast schemes of drainage have been proposed but they evoke great conflicts of interests and are beset with immense financial difficulties. Thus, though every one is agreed that something must be done, as a matter of fact nothing has been done. To obtain a proper water-supply a concession was given to a private company which has to lay water on in all houses of more than £13 annual rental value and to give a third of its water gratuitously to the city for public purposes, fountains, &c. The water comes in covered conduits directly from the gathering grounds and is considered quite safe and pure, though a little hard. Some 51,000 households are supplied with this water which is sold to them for 8*d*. the cubic metre and they consume on an average 47·5 cubic metres per annum per head. There are also some 3000 wells in Lisbon but it would be dangerous to drink the water which they contain. The police, however, are said to allow such water to be used for garden and washing purposes alone.

Another company, a group of cosmopolitan financiers, has provided Lisbon with a complete network of tramways that run frequently and even in very narrow and steep streets, and there are also elevators or cable cars by which very steep hills can be ascended for a small charge and without any fatigue. For the most part the city is lighted with gas but in some instances electricity is used. Mendicity, the reader will be surprised to hear, is forbidden by law, as also the importuning of pedestrians to buy newspapers, lottery tickets, and various trinkets, but it is acknowledged that these things cannot be prevented so long as there are insufficient places to which these people can be taken and set to some useful work. The problem of the unemployed besets the legislature and the municipalities in Portugal as in many other countries.

If there is here, as in most other places, no efficient means of dealing with the able-bodied pauper, there is no lack of hospitals for the poor and afflicted. The new isolation hospital for the treatment of infectious diseases and, close by, the hospital for tuberculosis are well worth a visit, and I hope on a future occasion to describe in detail what I saw there. Most of the hospitals, however, are not newly constructed. When in 1834 absolutism was abolished in Portugal, many of the convents were suppressed and converted into hospitals. But the hospital of Estaphania for special diseases of women was built some 30 years ago and to it have been added, in the gardens, some pavilions that are especially worth visiting. One of these is built on pillars standing over a concreted basement. The boards that form the floor are not joined together; it is possible to pass a small pencil between each of them, so that fresh air travels upwards throughout the whole of the flooring. The beautiful gardens at the disposal of the convalescent patients, the order and cleanliness, the brightness and light prevailing throughout, will certainly be admired by all visitors, and I hope to describe more fully on another occasion my inspection of this hospital. There are several other important hospitals.

The Bacteriological Institute is by the side of the new medical schools where the Congress meets. It is a recent structure and will not fail to attract many members of the Congress. All the most recent improvements have been introduced here. There are numerous laboratories—some for students, some for the professors, and others for the various forms of work done. Thus there are stoves and heated cupboards for maintaining culture broths at a certain elevated temperature, but there are others for keeping them cool and below the outside temperature, at least during the summer. The preparation of serums is an important department and for this there are some fine stables where donkeys are kept to provide the necessary blood. These animals luxuriate on the best of food and in admirably

sanitary stables. They look very sleek and healthy. Of course many other animals are kept on the premises. Of the patients, the most numerous come to be treated for hydrophobia. In 12 years 9547 persons were treated for bites from animals believed to be suffering from rabies. There are also wards for the treatment of children suffering from diphtheria, which is unfortunate, for there is no advantage, and perhaps some risk, in having so infectious a disease in the same building as the bacteriological institute. It is true that elaborate precautions are taken but it would be much preferable to send these children to an isolation fever hospital which is well away from the centre of the town and from other buildings.

The Institute of Hygiene, the School of Tropical Medicine, the Sanitary Department and services at the Ministry of the Interior, the control of the bread- and milk-supply, as well as that of the meat-supply, all are matters of great interest. In regard to milk, it is said that formerly as many as 60 per cent. of samples examined were found to be defective or adulterated. But on August 23rd, 1902, a decree was published by the Minister of the Interior in regard to the collection of samples of alimentary substances and adding to ordinary penalties the posting on the front of the shop an announcement of the verdict pronounced against the shopkeer. As a result, of 100 samples of milk now collected only three or four are found to be defective. There is another excellent law forbidding the sale by pawnshops of second-hand clothes till they have been disinfected and there are such stringent regulations to prevent the spread of tuberculosis that, in many instances, they cannot be applied. Also there are new and improved methods of disinfection and of dealing with passengers, ships, and merchandise coming from ports where plague, yellow fever, or cholera prevails. These are all matters which must be dealt with in detail. For the moment I can only urge that what I have already seen leads to the conclusion that there is something to be learnt from such investigations; and those who choose to profit by the opportunity will not be disappointed with their visit to Lisbon.

THE LATEST NEWS OF THE CONGRESS.

At a late hour this evening the exact number of subscriptions received from members of the Congress was 1451 and for ladies accompanying them 414. As there are thus 1865 names already inscribed it is probable that when the eleventh hour arrivals are included the total figure will exceed 2000. Among those who have arrived is Dr. A. Fernandez Cara, who was general secretary of the Fourteenth International Congress of Medicine held at Madrid three years ago. Also a large number of Brazilian medical practitioners landed to-day. It is a great rush to get the new School of Medicine ready for the Congress. Last night, however, the electric light was tried and found to work quite satisfactorily. Never before, I think, will a Congress have met in such absolutely new premises.

The programme of the fêtes is now definitely decided. The inaugural ceremony will take place at 2 P.M. on Thursday, April 19th, and there is to be a reception by Councillor Costa Alemão, President of the Congress. On the next day a garden party will be given by the Visconde Monserrate at Cintra, though how his beautiful grounds are to be reached by many members of the Congress remains a mystery, as at Cintra there are but few carriages available. On April 21st the King will entertain at dinner the official representatives of the various Governments who have been deputed to attend the Congress. On Sunday there will be what is likely to prove the most pleasurable of all the excursions. The members will proceed on a flotilla of steamers on the Tagus to Villa Franca; there they will be entertained at a Portuguese bull-fight, where, as is known, every care is taken that bull, horses, and men are not hurt. On Monday afternoon, the 23rd, a concert will be given to the ladies at the Zoological Gardens and in the evening there will be a soirée for all the members at the premises of the Geographical Society. Here, Portuguese national songs will be rendered and there will be dissolving views of the principal places of interest in Portugal. On the 24th the King will give a garden party to all the members of the Congress at the Palace of Necessidades. In the evening the Government will receive the delegates of the Governments, the schools of medicine, and scientific societies. Finally, on Wednesday, April 25th, the municipality will hold a reception at the town-hall. It will be all the easier to profit by these invitations as the sections will not meet in the afternoon but are summoned for the impossible hour of 8.30 in the morning and are expected to continue to sit till 2 or 3 P.M. without any adjournment.

Great disappointment is felt because Professor Behring has announced that he is too ill to attend. His paper on Infectious Diseases among Children will have to be read by someone else. Also the absence of Professor Brouardel will be greatly deplored. He is suffering from pulmonary congestion and is nursing himself at Antibes on the French Riviera.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Birmingham Lying-in Charity.

A YEAR ago the ticket system was abolished in this charity and was replaced by the adoption of a registration fee of half-a-crown. The result has been advantageous to the hospital, for it has received from the fees an additional income of £155 15*s*., whilst the subscription list has remained practically unchanged. The number of cases attended during the year was 1432, or 254 more than in the preceding year and 526 more than the average of the previous ten years. The medical officers were called in 119 times. The experience of the year showed that a further and larger supply of trained and certificated midwives is a necessity. Luckily the hospital is prepared to undertake the training and no other institution in the city can offer advantages equal to those which are associated with this charity. Alderman Cook pointed out that the health committee of the city council had recently investigated the question of the supply of midwives in Birmingham and it was found that of the 221 on the local roll only 21 were certified by examination, 52 could neither read nor write, and many had no conception of the details of that cleanliness which is so essential in the performance of their work. The hospital is not at present large enough for the work which it has to perform and for a time the committee had under consideration the advisability of erecting a new central home in Loveday-street. Plans were prepared but it was found that the scheme was not satisfactory, for the proposed building was too large for the site and sufficient light and air were not obtainable. Fortunately, Mrs. Barrow Cadbury offered the charity a piece of land adjoining the present site. This was a gift of enormous value, for it rendered possible the erection of a satisfactory building provided with sufficient light and air space. The only difficulty which now stands in the way is that of money. The new building will cost about £11,000. The amount at present available is only £7357 and the committee now appeals to the public to provide the remaining £4000. Mr. and Mrs. T. S. Walker have promised £100 contingent upon nine similar gifts and of these four have already been promised. It is unfortunate that this appeal for support, which is so thoroughly well deserved, should have to be made at the same time as the appeal for the Queen's Hospital extension, for the two claims must necessarily clash to a certain extent. Still, it can scarcely be doubted that both will be fully responded to.

The Crippled Children's Union and the Adult Cripples' Guild.

In some respects the institutions the object of which is to aid the crippled should be looked upon as the most deserving of our charities, for though in some cases it is hard to die it is often still harder to live a happy crippled life. I am therefore sorry to hear that the Adult Cripples' Guild will be forced to curtail its efforts unless aid is rapidly forthcoming. It requires monetary aid not only for the continuance of its work but also to wipe out an adverse balance and it requires the assistance of employers of labour who are willing to give a chance of employment to those of its *protégés* who are capable of work. The Adult Guild was formed three years ago, its object being still to keep in touch with the cripples after they leave the Crippled Children's Union at the age of 16 years. It is to be hoped that the necessary help will be forthcoming, for it is obvious that to cast the cripples adrift at 16 years of age after taking care of them, first in a special school and then in the Crippled Children's Union, is an act of sheer cruelty, for the care previously bestowed upon them will only have enabled them to feel more acutely their subsequent distress. During

the past year 180 cases have been on the register of the Adult Guild—that is, 20 more than in the previous year. Through the generosity of Mrs. Barrow Cadbury, who lent the Guild a cottage at Blackwell for three months, 28 members were sent away for a holiday, with very beneficial results. At present there are about 20 cases capable of work and unable to obtain it, and it is for these especially that the committee appeals to the employers of labour.

The Royal Orthopædic Hospital.

The new out-patient department of the Orthopædic Hospital has been commenced and when completed it will greatly facilitate the work of the hospital but will not provide everything which is required, for the old hospital must be rebuilt. The committee recognises the necessity for rebuilding, or at all events for considerable alterations and extensions but it sees that the present moment is not an opportune one for an appeal to the public, more especially as it does not wish in any way to interfere with the claims of the Queen's Hospital extension appeals. The hospital was founded in a very small way nearly 90 years ago and it is 40 years since it was transferred to its present site. The work has gradually outgrown the capabilities of the building and a few years ago it became essential to acquire temporary premises for the out-patient work. The premises obtained were hired from the corporation and are now required in connexion with the Council House Extension Scheme. Therefore, of necessity, a new out-patient department had to be erected and ground was acquired on favourable terms from the Colmore trustees. When the building is completed it will have a frontage of 22 feet in Great Charles-street and will extend back for 85 feet, and when the old hospital is rebuilt it will be separated from the new out-patient department only by a garden which will be common to the two buildings. On the ground floor in the new out-patient department there will be an out patients' waiting room large enough to accommodate 85 people, a surgeons' room, dressing rooms, and a dispensary. On the first floor will be exercising rooms and massage rooms for males and females; nurses' rooms, an isolation room, and the bath-rooms will be on the second floor. Accommodation for perambulators will be provided in the basement. The foundation-stone of the new department was laid by the Lord Mayor (Councillor A. J. Reynolds) and the ceremony was presided over by the Marquis of Hertford.

Bequests to Local Charities.

Under the will of the late Mrs. Mary Day of Worcester the Worcester Infirmary receives £2000, the Royal Albert Orphan Asylum £500, and the Birmingham Blind Institution £500.—The late Mr. George Martin of Birmingham has bequeathed £100 to each of the following institutions: the General Hospital, the Queen's Hospital, the Midland Eye Hospital, and the General Institution for the Blind.

Police Ambulance.

The recent competition for the Rowland Mason Challenge Cup demonstrated in a very pleasant way the admirable efficiency of the training of the members of our police force in association with ambulance work. The men were keen and active; they knew what was required and how to do it. In the competition they were required not only to treat ordinary accidents but also to rescue insensible persons from a room filled with gas and to extricate others entangled in "live" electric wires and to give efficient first aid to each set of sufferers. The chairman of the watch committee (Mr. Godlee) pointed out that the police gave assistance in about 1000 accidents during the year, therefore it is essential that they should be well trained in ambulance work, and there can be no doubt that competitions such as that for the Rowland Mason Challenge Cup act as useful stimuli.

April 17th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester and Salford Sanitary Association.

THE annual meeting of the Manchester and Salford Sanitary Association was held in the town-hall on March 29th. The report showed a continuance of the steady work in aid of more healthful conditions which has characterised this useful institution. Among other things, an investigation is being carried on as to the possibility of further safeguards for the workers in the manufacture or use of white lead; into the cause of lamp explosions, an inquiry which has brought a diminution of such explosions; into the overcrowding of tramcars, the objectionable and unhealthy character of third-class smoking carriages, &c. Pressure is brought to bear on the city council to extend the provision of cottage baths and washhouses in the poorer parts of the city. It is one of the most civilising and health-saving directions in which the council can expend the ratepayers' money. But baths and washhouses for the poor are hidden away in mean streets; there is no great beauty about them, no architectural splendour or glamour of decoration, no great cost, which latter makes the heart of the average town councillor throb with pride, for he likes to see something that is "an ornament to the city," even if poor women and children have to go unwashed. Even the Local Government Board seems sometimes to be startled at the magnificent borrowings of the corporation. The sum now wanted is £39,715 for new baths and washhouses at Bradford, a working-class suburb. It certainly is a district where public baths and washhouses are needed, for it is said that out of 11,949 dwelling-houses there are only 411 with baths. Swimming-baths, of course, require space and those who want a swim should not begrudge a walk for it, as they cannot be scattered broadcast, but it is quite a different thing for a poor woman with her bundle of soiled clothing and two or three little children who want washing. These conveniences should be near the homes of the people.

Placarding Alcohol.

One of the attractions at the meeting of the Sanitary Association was the presence of Professor G. Sims Woodhead who gave an address on the relationship of alcohol to nutrition. He spoke of the former as lowering the action of the various tissues and organs of the body, of how it blunted the sensations, and among them those of hunger and fatigue, and ended his discourse by saying that the only disease from which teetotalers died more frequently than moderate drinkers was old age. To show, however, that this teaching is not universally received, one need only go as far as Warrington where recently at a meeting of the town council one of the members protested against the issuing of a placard calling attention to the evil effect of the abuse of alcohol on public health. "Alcohol was all right," he said, "if taken regularly," and he drew attention to the opinion of a medical man that it was the best thing in the world for killing microbes. One cannot pretend that the scientific standard of the Warrington town council is very lofty, but when the mayor stated that the people for whom it was meant would be too drunk to see the placard a ray of common sense illumined the mind of an alderman who said that was the best reason for its publication, for those who could read it might tell the others. The placard was founded on the Birmingham model and on the recommendation of the Committee on Physical Deterioration. After all the discussion it was decided to publish the placard.

A New Ear Hospital.

The Manchester Ear Hospital was founded in 1855 by a few gentlemen who were anxious that there should be some better provision for the treatment of diseases of the ear than at that time existed in Manchester. Sir James Bardsley, M.D., was the first president. Four rooms in Oxford-street were occupied for the Ear Institution, as it was then called, had very modest beginnings. In 1867 there was a change of quarters to Lower Mosley-street and in 1870 the first grant of £36 was received from the Hospital Sunday Fund. Another change, to 25, Byrom-street, was made in 1877 and there it remained till 1884 when it moved to its present quarters at 23, Byrom-street. The desirability of providing for in-patients was urged by the medical staff for years and the department was established in 1893. During the following year 60 in-patients were received and the number has gradually increased till in 1904-05 271 were admitted. The honorary staff consists of a consulting physician, Dr. H. Simpson; Dr. F. M. Pierce, consulting surgeon; four surgeons, Mr. T. H. Pinder, Dr. F. Cox, Dr. W. Milligan, and Dr. L. Larmuth, while Dr. Herbert Lund is the anæsthetist. The work has steadily increased year by year and has "outgrown the capacity of the existing hospital in Byrom-street." The board of management has long had the question of removal under consideration and has now taken preliminary measures by securing

the option of purchasing, at a reasonable price, a piece of land near the new infirmary in Oxford-road which, by the way, will soon become the principal hospital quarter of Manchester. The scheme is to provide at first 24 beds for in-patients and the building will be so arranged as to allow of enlargement when required. An appeal therefore is made for £15,000, which will cover, it is believed, the cost of the land and the erection of the building, and this public appeal, the first in the history of the hospital that has extended beyond the limited circle of the annual subscribers, may well include a wider public than that of Manchester, for, as a matter of fact, the patients come from all parts of Lancashire and Cheshire, while some hail from Yorkshire, Derbyshire, and others of the northern counties. When the hospital is established in Oxford-road it will be more easily available to the students than at present and no doubt some arrangements as to the teaching of the somewhat neglected subject of ear disease will be made and the clinical material will be more thoroughly utilised.

April 16th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Spread of Sleeping Sickness in Africa: Address by Dr. J. L. Todd.

AT a meeting of the African trade section of the Liverpool Chamber of Commerce Dr. J. L. Todd delivered an address on the Danger of the Spread of Sleeping Sickness throughout Africa and the Necessary Measures for its Prevention. Dr. Todd illustrated his lecture by means of maps shown on a screen. He remarked that the distribution of sleeping sickness was probably more universal than was indicated, since the disease was not infrequently present without its nature being recognised. The name of the malady was misleading. It was called sleeping sickness but, as a matter of fact, sleep was far from an important symptom and occurred only in the terminal stage of the disease in a small number of cases. Isolated cases had occasionally been reported from Sierra Leone but in a general way sleeping sickness was said not to exist in Freetown. Captain Grant, R.A.M.C., by employing a perfected means of diagnosis had shown that it occurred there more frequently than had been thought. He had had between 16 and 20 cases under his care during the past few months. A few of these were imported cases and the remainder were natives who had never been out of the colony. Injurious epidemics of sleeping sickness had occurred in the neighbourhood of Sierra Leone. For instance, the region just south of the Gambia, about the Cosamance river, had suffered severely. In view of this fact, they must at least consider the danger of such epidemics making their appearance in Sierra Leone. It was practically impossible to collect trustworthy statistics of sickness and death among the shifting African native populations, and although sleeping sickness was so prevalent it was extremely difficult to make an intelligent estimation of the number of persons who had died from it. He thought, however, that it would not be far from the truth to state that from 400,000 to 500,000 natives had died from this cause in Africa during the past ten years. The fact that the disease was so widespread in Africa was sufficiently disconcerting. What was more alarming was the rapidity with which it was spreading. To indicate this point Dr. Todd took as an example that part of Africa which was worked over by the expedition sent out by the Liverpool School of Tropical Medicine to study sleeping sickness in 1903. He referred to the Congo Free State. It was a large dominion; it covered an area equal to one-third of the United States and therefore conditions found to exist there might safely be used in making generalisations. By means of circles on a map Dr. Todd indicated posts administered by white men in which the first recognised cases of sleeping sickness occurred amongst individuals—soldiers, labourers, and their wives—imported into the district by white men. The history of the spread of the disease in the Congo indicated that each of these posts might become in its turn a centre of infection for the surrounding district. Having pointed out that districts in the Congo and Uganda had been made desolate through the disease, he said that the weight of opinion at the moment was that no person once infected ever recovered. Surely an attempt should be made to protect districts not yet infected. Yet nothing was at present being done by the Colonial Government to protect the natives in British Central Africa from their imminent danger. To arrest, for a time at least, the spread of the disease it was proposed to prevent infected persons from entering non-infected districts. It was easy enough to recognise the person who was infected, for, as a general rule, an enlargement of the glands of the neck without obvious cause in Africans might be taken as a sign of sleeping sickness. As a means of combating the disease it was recommended that medical posts of inspection along the most travelled trade routes should be established; and, secondly, the transportation of infected persons at present living in uninfected districts to localities already infected. The application of these measures would be obtained by informing every employer of labour of the significance of enlarged cervical glands. Each of them would be trusted to examine his staff and to send suspected persons towards infected regions to the nearest medical man, where, if it was necessary for diagnosis, the patient would be watched. Dr. Todd concluded his address by emphasising that the enormous spread and great increase of sleeping sickness in the Congo basin during recent years had been in a great measure due to the increase in travel, following the opening up of the country; that cases of trypanosomiasis, though apparently healthy, might be detected by their enlarged glands; and that good results might be expected from the serious application of quarantine measures dependent for their efficiency upon cervical gland palpation. Sir Alfred Jones subsequently entertained the members of the section, including Dr. Todd, to luncheon at the North-Western Hotel.

The Select Vestry and the late Dr. Arthur Blackwood.

Mr. William Crosfield, at a meeting of the select vestry held on April 9th, took the opportunity to pay a tribute to the late Dr. Arthur Blackwood whose loss the vestry mourned in common with the widow. Dr. Blackwood's tenure as a medical officer at the Liverpool workhouse covered the period May, 1885, to July, 1889. He had had a career of singularly brilliant promise narrowed by poisoning which he incurred by devotion to duty. For months his life hung in the balance and on partial recovery he was appointed public vaccinator, in which office he gave valuable service until the end. Other members reciprocated Mr. Crosfield's sentiments.

The New Hospital at Fazakerley.

No inconsiderable interest centres in the opening of the palatial city infectious diseases hospital at Fazakerley which will take place on April 25th. This fine institution has cost the ratepayers of Liverpool a large sum of money and it is claimed that it is one of the finest hospitals of its kind in the kingdom. Mr. J. Utting, the chairman of the port sanitary and hospitals committee, will perform the inaugural ceremony.

April 17th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Universities Carnegie Trust: Alterations regarding Class Fees.

IN the last report of the executive committee of the Carnegie Trust for the Scottish Universities it was intimated that the regulations as to the payment of class fees would require to be reconsidered because of the demands which had been made upon this department of the trust. The changes determined on have now been published and in so far as they bear upon the Faculty of Medicine they are as follows. Under "degree examinations" it is provided that if a student has failed on two occasions to pass an examination no further fees are to be paid until he has passed. Under "advanced and honours classes" it is provided that the payment of class fees is to be confined to the class attendances required for a curriculum for an ordinary degree. This rule, it may be mentioned, was necessary because of the great number of extra classes which students were taking out and getting the trust to pay the fees. The rule, however, carries an important concession with it—namely, that in the case of students who have already passed the ordinary examination for graduation in the relative subject payment may be made of the fees of

the past year 180 cases have been on the register of the Adult Guild—that is, 20 more than in the previous year. Through the generosity of Mrs. Barrow Cadbury, who lent the Guild a cottage at Blackwell for three months, 28 members were sent away for a holiday, with very beneficial results. At present there are about 20 cases capable of work and unable to obtain it, and it is for these especially that the committee appeals to the employers of labour.

The Royal Orthopædic Hospital.

The new out-patient department of the Orthopædic Hospital has been commenced and when completed it will greatly facilitate the work of the hospital but will not provide everything which is required, for the old hospital must be rebuilt. The committee recognises the necessity for rebuilding, or at all events for considerable alterations and extensions but it sees that the present moment is not an opportune one for an appeal to the public, more especially as it does not wish in any way to interfere with the claims of the Queen's Hospital extension appeals. The hospital was founded in a very small way nearly 90 years ago and it is 40 years since it was transferred to its present site. The work has gradually outgrown the capabilities of the building and a few years ago it became essential to acquire temporary premises for the out-patient work. The premises obtained were hired from the corporation and are now required in connexion with the Council House Extension Scheme. Therefore, of necessity, a new out-patient department had to be erected and ground was acquired on favourable terms from the Colmore trustees. When the building is completed it will have a frontage of 22 feet in Great Charles-street and will extend back for 85 feet, and when the old hospital is rebuilt it will be separated from the new out-patient department only by a garden which will be common to the two buildings. On the ground floor in the new out-patient department there will be an out patients' waiting room large enough to accommodate 85 people, a surgeons' room, dressing rooms, and a dispensary. On the first floor will be exercising rooms and massage rooms for males and females; nurses' rooms, an isolation room, and the bath-rooms will be on the second floor. Accommodation for perambulators will be provided in the basement. The foundation-stone of the new department was laid by the Lord Mayor (Councillor A. J. Reynolds) and the ceremony was presided over by the Marquis of Hertford.

Bequests to Local Charities.

Under the will of the late Mrs. Mary Day of Worcester the Worcester Infirmary receives £2000, the Royal Albert Orphan Asylum £500, and the Birmingham Blind Institution £500.—The late Mr. George Martin of Birmingham has bequeathed £100 to each of the following institutions: the General Hospital, the Queen's Hospital, the Midland Eye Hospital, and the General Institution for the Blind.

Police Ambulance.

The recent competition for the Rowland Mason Challenge Cup demonstrated in a very pleasant way the admirable efficiency of the training of the members of our police force in association with ambulance work. The men were keen and active; they knew what was required and how to do it. In the competition they were required not only to treat ordinary accidents but also to rescue insensible persons from a room filled with gas and to extricate others entangled in "live" electric wires and to give efficient first aid to each set of sufferers. The chairman of the watch committee (Mr. Godlee) pointed out that the police gave assistance in about 1000 accidents during the year, therefore it is essential that they should be well trained in ambulance work, and there can be no doubt that competitions such as that for the Rowland Mason Challenge Cup act as useful stimuli.

April 17th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester and Salford Sanitary Association.

THE annual meeting of the Manchester and Salford Sanitary Association was held in the town-hall on March 29th. The report showed a continuance of the steady work in aid of more healthful conditions which has characterised this useful institution. Among other things, an investigation is being carried on as to the possibility of further safeguards for the workers in the manufacture or use of white lead; into the cause of lamp explosions, an inquiry which has brought a diminution of such explosions; into the overcrowding of tramcars, the objectionable and unhealthy character of third-class smoking carriages, &c. Pressure is brought to bear on the city council to extend the provision of cottage baths and washhouses in the poorer parts of the city. It is one of the most civilising and health-saving directions in which the council can expend the ratepayers' money. But baths and washhouses for the poor are hidden away in mean streets; there is no great beauty about them, no architectural splendour or glamour of decoration, no great cost, which latter makes the heart of the average town councillor throb with pride, for he likes to see something that is "an ornament to the city," even if poor women and children have to go unwashed. Even the Local Government Board seems sometimes to be startled at the magnificent borrowings of the corporation. The sum now wanted is £39,715 for new baths and washhouses at Bradford, a working-class suburb. It certainly is a district where public baths and washhouses are needed, for it is said that out of 11,949 dwelling-houses there are only 411 with baths. Swimming-baths, of course, require space and those who want a swim should not begrudge a walk for it, as they cannot be scattered broadcast, but it is quite a different thing for a poor woman with her bundle of soiled clothing and two or three little children who want washing. These conveniences should be near the homes of the people.

Placarding Alcohol.

One of the attractions at the meeting of the Sanitary Association was the presence of Professor G. Sims Woodhead who gave an address on the relationship of alcohol to nutrition. He spoke of the former as lowering the action of the various tissues and organs of the body, of how it blunted the sensations, and among them those of hunger and fatigue, and ended his discourse by saying that the only disease from which teetotalers died more frequently than moderate drinkers was old age. To show, however, that this teaching is not universally received, one need only go as far as Warrington where recently at a meeting of the town council one of the members protested against the issuing of a placard calling attention to the evil effect of the abuse of alcohol on public health. "Alcohol was all right," he said, "if taken regularly," and he drew attention to the opinion of a medical man that it was the best thing in the world for killing microbes. One cannot pretend that the scientific standard of the Warrington town council is very lofty, but when the mayor stated that the people for whom it was meant would be too drunk to see the placard a ray of common sense illumined the mind of an alderman who said that was the best reason for its publication, for those who could read it might tell the others. The placard was founded on the Birmingham model and on the recommendation of the Committee on Physical Deterioration. After all the discussion it was decided to publish the placard.

A New Ear Hospital.

The Manchester Ear Hospital was founded in 1855 by a few gentlemen who were anxious that there should be some better provision for the treatment of diseases of the ear than at that time existed in Manchester. Sir James Bardsley, M.D., was the first president. Four rooms in Oxford-street were occupied for the Ear Institution, as it was then called, had very modest beginnings. In 1867 there was a change of quarters to Lower Mosley-street and in 1870 the first grant of £36 was received from the Hospital Sunday Fund. Another change, to 25, Byrom-street, was made in 1877 and there it remained till 1884 when it moved to its present quarters at 23, Byrom-street. The desirability of providing for in-patients was urged by the medical staff for years and the department was established in 1893. During the following year 60 in-patients were received and the number has gradually increased till in 1904-05 271 were admitted. The honorary staff consists of a consulting physician, Dr. H. Simpson; Dr. F. M. Pierce, consulting surgeon; four surgeons, Mr. T. H. Pinder, Dr. F. Cox, Dr. W. Milligan, and Dr. L. Larmuth, while Dr. Herbert Lund is the anæsthetist. The work has steadily increased year by year and has "outgrown the capacity of the existing hospital in Byrom-street." The board of management has long had the question of removal under consideration and has now taken preliminary measures by securing

the option of purchasing, at a reasonable price, a piece of land near the new infirmary in Oxford-road which, by the way, will soon become the principal hospital quarter of Manchester. The scheme is to provide at first 24 beds for in-patients and the building will be so arranged as to allow of enlargement when required. An appeal therefore is made for £15,000, which will cover, it is believed, the cost of the land and the erection of the building, and this public appeal, the first in the history of the hospital that has extended beyond the limited circle of the annual subscribers, may well include a wider public than that of Manchester, for, as a matter of fact, the patients come from all parts of Lancashire and Cheshire, while some hail from Yorkshire, Derbyshire, and others of the northern counties. When the hospital is established in Oxford-road it will be more easily available to the students than at present and no doubt some arrangements as to the teaching of the somewhat neglected subject of ear disease will be made and the clinical material will be more thoroughly utilised.

April 16th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

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honours classes or of classes dealing with a distinct extension of the range of work belonging to the obligatory classes. Special application forms for fees of such classes have to be applied for. With regard to attendances in more than one faculty at a time, this will not be allowed unless a satisfactory reason is given. A beneficiary comes under an obligation to refund the fee of any class in which he has failed to obtain a certificate that he has given regular attendance and duly performed the work of the class during the session. No payment will be made of fees of classes in which such certificates are not issued by the teacher. There are classes held in the summer where no qualifying work is demanded and therefore no qualifying certificate is given. It is felt that the trust cannot continue to pay fees without a guarantee. These alterations will have a salutary check upon the marked tendency which the Carnegie money has had in increasing the number of extra classes and in encouraging students to take out such classes from quite insufficient reasons. It is interesting to note the adaptability of the Carnegie Trust to circumstances as they evolve, whilst the universities seem to be tied hand and foot by regulations or ordinances that nothing short of an earthquake seems capable of moving.

University of Edinburgh: Spring Graduation.

At the spring graduation ceremonial at the University of Edinburgh on April 12th the following amongst others received the degree of Doctor of Laws (LL.D.): His Grace the Duke of Bedford; Dr. Alexander Graham Bell, the inventor of the telephone and a native of Edinburgh; His Excellency Wirklicher Geheimrat, Dr. Ernst von Bergmann, professor of surgery and director of the Royal Surgical Clinique in the University of Berlin; Dr. David Christison, son of Sir Robert Christison, and known for his archæological attainments; Professor George Dancer Thane, of University College, London; Mr. A. Taylor Innes, Mr. William Crawthorne Unwin, F.R.S., and Miss Louisa Stevenson.

The Smoke Nuisance.

The smoke problem is asserting itself even in Edinburgh and any light on the solution of it is to be welcomed. Mr. G. H. Gemmell has been reading a paper before the Edinburgh Association of Science and Arts on Coal and What We Get from It, and in the course of his paper he gave facts which have an important bearing on this subject. He said that the ideal system of utilising the energy in coal was to convert it into gas at the pit's mouth and to convey it in pipes to the consumers for direct use in gas engines. All cooking and heating would be done by gas, soot and smoke would disappear, and the tons of sulphuric acid and soot which were discharged into the air would be saved for useful purposes. The value of sulphate of ammonia recovered in gasworks was worth £2,500,000 sterling, while if the ammonia from all the coal consumed was saved it would have a value of £36,000,000. The ideal does not appear to be impracticable and the amount of cleaning that would be saved would be enormous. Electricity for lighting and gas for heating, cooking, and driving machinery would make our cities and our houses clean.

Glasgow Royal Infirmary: Post-Graduate Classes.

The winter term has proved a very successful one, the attendance being highly satisfactory. The course embraced 11 subjects and all the classes were conducted on strictly practical lines so that those who attended had every opportunity of becoming familiar with the various conditions demonstrated. The summer term will begin on April 30th and will include demonstrations on Neuro Pathology, by Dr. Walter K. Hunter; Gynæcology, by Dr. James K. Kelly and Dr. G. Balfour Marshall; Diseases of the Throat and Nose, by Dr. Robert Fullerton; Clinical Medicine, by Dr. George S. Middleton and Dr. James W. Allan; Clinical Surgery, by Mr. J. Hogarth Pringle and Dr. Peter Paterson; Bacteriology, by Mr. David McCrorie; and Operative Surgery, by Mr. Henry E. Clark.

Beri-beri in the Clyde.

For the second time within the last three months a steamer has arrived in the Clyde with cases of beri-beri on board. In this instance the steamer hailed from Rangoon and the two patients, who were members of the lascar crew, have been removed to Belvidere Hospital.

Death of a Retired Moffat Medical Man.

The death at his residence, Vicarlands, Moffat, is announced of Dr. James Munro, a retired medical practitioner who for over half a century has been one of the most respected and prominent townsmen of Moffat. The deceased, who was 80 years of age, was a native of Musselburgh and for 44 years was the leading member of the medical profession in Moffat where he built up a very extensive practice from which he retired 13 years ago. Dr. Munro in 1847 was one of the medical men who was sent to Dumfries to combat the cholera plague in that town.

Munificent Gift for Ross-shire.

Seaforth, the chief of the Mackenzies, and Mrs. Stewart Mackenzie of Brahan Castle, have intimated their intention of building, equipping, maintaining, and ultimately endowing a consumption sanatorium in Ross-shire. The object of the sanatorium will be to submit early cases of pulmonary tuberculosis for several months to treatment with a view to arrest the progress of the disease and to effect a cure, and also to educate the patients in the system of open-air treatment so that on leaving they may introduce the principles to their own homes which will become centres of instruction to others. The sanatorium will be open to the inhabitants of Ross and Cromarty, and no charge will be made for the treatment. The site will be on the Brahan estate and the building will be modelled on the type of the one erected by the Brompton Hospital for Consumption at Frimley in Surrey.

April 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Trinity College Commission.

ALL questions about medical matters seem to have given place in Dublin to the discussions and letters which appear daily with reference to the forthcoming commission of inquiry about the affairs of Trinity College. Mr. Bryce's statement in the London *Times* of March 21st satisfied most moderate people, for in it he pointed to the fact that since the last commission on Trinity College there has been a complete revolution in English university life—four commissions of inquiry into the Universities of Oxford and Cambridge and three commissions as regards the universities of Scotland, and that as a result much progress had been made. How Trinity College escaped those commissions of inquiry is not mentioned and the fact leaves an opening to Nationalist Members of Parliament, who will doubtless be very ready to use it. They may fairly ask, Why is it that this college, if it proposes to be a national college, has not a single Roman Catholic on its governing board? and Why are the fees for medical graduates far higher—in this poor country—than those charged in Edinburgh and in Glasgow? There are many other matters that Mr. Bryce's commission should deal with. I trust that it will. As to the attacks on the examinations they seem of no importance.

National Association for the Prevention of Tuberculosis.

The fifth general meeting in connexion with the Dublin branch of the National Association for the Prevention of Tuberculosis was held on April 10th in the Mansion House, Mr. Field, M.P., occupying the chair. Sir Thornley Stoker, President of the Royal Academy of Medicine, in moving the adoption of the report, paid a high tribute to the admirably careful analysis of the death-rate recently issued by the Registrar-General.

The Royal University of Ireland.

Dr. Edward Magennis of Dublin has issued his address as a candidate for the senatorship of the Royal University. He appeals to the electors as a graduate of 20 years' standing and as one who, from the fact that he resides in Dublin, will be able to attend the meetings. He believes that graduates should have full access to the University buildings and grounds. He gives in connexion with the Royal University the following interesting figures: Salaries of Fellows, £8790; remuneration of examiners, £3048; travelling expenses of examiners, £1741; exhibitions, £2414; studentships, £1450; and junior Fellows, £1550; leaving a balance of £12,893, a part of which Dr. Magennis thinks should be applied in developing the utility and resources of the library so that graduates and students could make use of it, while part, he considers, should be given in additional exhibitions and prizes. The election is to take place on April 20th.

Belfast Ophthalmic Institution.

At the annual meeting of the supporters of this hospital held on April 9th it was reported that there were 1518 new extern eye cases and 695 ear and throat patients in 1905, while the intern cases numbered 122, making a total of 2235 patients seen during the year. In the wards there were 103 operations. Financially the year began with a debit balance of £96 and terminated with a sum of £200 on the wrong side of the account. Dr. Cecil E. Shaw read the medical report. Dr. J. Walton Browne said that in his opinon a large number of people in Belfast who were able to pay for medical attendance should not be received into any of the larger charities; they should go into some of the well-equipped private hospitals in the city. Dr. V. G. L. Fielden was thanked for his services as anæsthetist and Professor W. St. Clair Symmers was appointed pathologist to the hospital.

The Consumption Problem in Belfast.

The chairman of the Belfast public health committee having stated at the last public meeting of the city council that any suggestions would be welcomed for improving the health of the city or lessening the death-rate, Professor J. W. Byers has in a published article proposed the adoption in Belfast of the recommendations made in the memorandum recently issued by the Scotch Local Government Board. Professor Byers produces figures to show that when Belfast is contrasted with other cities (such as Manchester, Liverpool, Northampton, Blackburn, Salford, Oldham, Halifax, Brighton, Glasgow, Aberdeen, Dundee, Leith, Paisley, and Greenock) it appears that the death-rate in them from consumption has steadily fallen, while in Belfast for the past 12 years the average death-rate from the same disease has kept at 3·3 per 1000, a ratio immensely higher than in the great English and Scotch cities. Again, while the death-rate from pulmonary tuberculosis in Belfast in 1894 was 3·5, it was last year (1905) 3·1. That is, statistics demonstrate that the death-rate from pulmonary tuberculosis in Belfast was much too high and showed little, if any, sign of falling. In the decennial report (1891-1900) for Ireland the highest death-rate from pulmonary tuberculosis for any of the civic unions was 35·0 per 10,000 in South Dublin union; in Belfast it was 34·1, in Cork 33·6, and in Dublin North 32·1. The rate for the two unions, Dublin North and Dublin South combined, was 33·8—that is, less than in Belfast. During this same ten years no less than 73,349 persons (35,147 males and 38,202 females) succumbed in Ireland to pulmonary tuberculosis between the ages of 15 and 45 years. In Scotland between the periods 1861-65 and 1901-02, the death-rate from pulmonary tuberculosis has fallen 42 per cent., in England between 1861-65 and 1901-03 it has steadily declined 52 per cent., while in Ireland between 1864-65 and 1901-03 it has actually increased 20 per cent. It is to be hoped that the public health authorities will take some real action in Belfast towards stamping out consumption, the death-rate from which in that city is appalling.

Post-Graduate Classes in Belfast.

During the ensuing summer a post-graduate course of practical demonstrations of cases and clinical methods is to be given between July 16th and 28th by the medical staff of the Royal Victoria Hospital, Belfast, at that institution.

Death of Mr. Joseph Graham Burne.

Mr. J. Graham Burne, L.R.C.P. Irel., M.R.C.S. Eng., a well-known medical practitioner of Dublin, died on April 16th at his residence, 38, Westland-row. He was in his sixty-third year, and in addition to being one of the medical officers of the South Dublin union was for many years physician to the City of Dublin prisons. He was much esteemed in the city.

April 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Interesting Results obtained by Hypnotic Suggestion.

AT a meeting of the Society of Hypnology and Psychology held on Feb. 20th two members related the following interesting cases. The first, an account of which was given by M. Damoglou, related to a woman, aged 29 years, who suffered from frequent convulsive crises brought on by any mental disturbance. Some four years ago she completely lost the power of speech, but at the end of 15 days, thanks to hypnotic suggestion, she was able to speak as well as ever. Some months ago, after a convulsive crisis, she again lost the power of speech. M. Damoglou hypnotised her, and while she was in the hypnotic sleep he made her take a placebo (*médicament psychique*), to which the suggestive influence of M. Damoglou added a powerful therapeutical effect. When the woman woke up from her hypnotic trance she could speak perfectly well. The second case was described by Dr. Bonjour and related to the lying-in room. A certain number of cases which had come under his charge had enabled him to conclude that in cases where he was able to put the woman into a state of hypnotism she would be confined on a suggested day on condition that this day was not sooner than eight days before the expected date of her confinement as calculated by the ordinary method and after examination of the patient. He said that the physician who adopted this method of treatment ought not to leave the patient before dilatation of the os had commenced. If, however, the physician could not spare the time for this or if he could not manage to bring about the state of hypnotism he could, however, without being definitely sure of bringing on labour on the suggested day cause that it should commence during the night and that the period of dilatation and expulsion should not take place until the next day.

Abscess of the Breast treated by Iodoacetone.

At a meeting of the Therapeutical Society held on March 28th M. Camescasse stated that M. Danlos by the introduction of iodoacetone had done a great service to the country medical man. Iodoacetone renders superficial inflammatory processes aseptic and even if applied too late to prevent the formation of pus it liquefies the pus and makes the abscess a collection of harmless matter which may be easily evacuated, while the wound heals up very readily. If the abscess occurs in a portion of the body provided with natural evacuant channels, even though such be merely capillary, the medical man need not incise it, for the pus is rendered so liquid that it escapes by the natural channels. Hence, in abscess of the breast all that is necessary is to brush iodoacetone over the gland as long as the breast has not been converted into a mere bag of pus-holding skin. However red or hot or swollen the breast may be treatment should begin by brushing it over with iodoacetone. If the abscess is pointing it may be incised at any time, from half an hour afterwards to the following day. But in any case two hours after the application of the iodoacetone a breast-pump should be applied, when the surgeon will easily be able to draw off without any pain a mixture of milk, pus, and serous fluid. The skin will become wrinkled but after 48 hours the breast will have regained its normal consistency. M. Camescasse tried this method with perfect success in the case of a very timid patient who refused any surgical intervention. He has, moreover, met with success in many similar cases.

Hernia of the Appendix in the Sac of a Femoral Hernia.

At a meeting of the Surgical Society held on March 28th Dr. le Clerc gave an account of a case of femoral hernia in a woman, aged 62 years. Two years previously she had noted a swelling in the right groin, which, however, disappeared spontaneously. When Dr. le Clerc saw her she had no rise of temperature but marked signs of abdominal mischief (*péritonisme*); for some days previously she had suffered from diarrhœa and tenesmus. The swelling in the groin was dull to percussion, hard, as thick as a thumb, and about five centimetres long. Dr. le Clerc opened the sac and found within the appendix and its mesentery. The tip of the appendix was ulcerated but not gangrenous. The hernia was therefore complicated with a masked appendicitis, to which was due the diarrhœa. Dr. le Clerc compared this case with a similar one under the care of M. Moty and mentioned that in his opinion the elongated form of the hernia and its firm consistence were typical of an isolated hernia of the appendix.

The Surgical Treatment of Eclampsia.

At a meeting of the Academy of Medicine held on April 3rd M. Chamberland and M. Pousson communicated a paper upon the Surgical Treatment of Eclampsia by means of Nephrotomy. This treatment, which was introduced in America by Edebohls, has been adopted frequently since in France. In eclampsia there almost always coexist nephritis and albuminuria. The kidney substance accordingly swells

and becomes too large for its fibrous capsule. It is not certain that this is the cause of the nephritis and the albuminuria but it is certain that Edebohls, who was ingenious and bold enough to lay bare the kidney and to incise its capsule, saw the kidney herniate through the capsular wound and, moreover, noted that with the decompression of the kidney the eclampsia disappeared. The operation has frequently been performed in various hospitals with results which could hardly have been hoped for. It is, however, undoubtedly a serious thing to cut down on to and to incise the kidney in every pregnant woman who shows signs of eclampsia. A milk diet, bleeding, and intravenous injections, together with lumbar puncture, seem to give as good results as incision of the kidney without the risks attaching to the latter operation.

The Treatment of Congenital Syndactyly.

At a meeting of the Society of Surgery held on April 4th M. Quénau showed a child the subject of congenital syndactyly of several fingers in either hand. In this case M. Quénu had tried various methods of plastic operation for the cure of the condition. He tried the method of Zelier and the method of Didot and the Italian method which consists in taking a flap from the skin of the abdomen. In M. Quénu's opinion this last method as a rule is that which gives the best results.

April 16th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Roentgen Rays in Military Surgery.

Dr. Colmer, a surgeon to the German Red Cross Hospital with the Russian forces in Manchuria, writing to the *Münchener Medicinische Wochenschrift*, describes his experiences of radiography in the Russo-Japanese war. He discusses the question where the Roentgen ray apparatus should be placed and what pattern of apparatus is best fitted for use in war. He believes that radiographic apparatus is out of place both in the dressing stations on the battlefield and also in the moveable field hospitals and that it ought to be reserved for the stationary and base hospitals. He says that the employment of radiography is practically impossible on the battlefield and extremely difficult in a moveable field hospital. Radiographic examination in military surgery is used principally to ascertain whether a projectile remains in the body and whether it requires removal. Dr. Colmer explained that a bullet, as a rule, is not to be removed at once but only either when the wound has become contaminated or when the bullet causes severe pains or nervous troubles by pressure on bones or nerves. These effects, however, occur only after the lapse of a period which permits the conveyance of the patient to a stationary hospital. The same is the case in complicated fractures of the bones where the Roentgen rays are useful for an accurate coaptation of the fragments—a work which is undertaken in the stationary hospitals and not on the battlefield or in the moveable field hospitals. According to his experiences in Manchuria there was no case where an immediate radiographic examination was required in a field hospital. In conclusion he gives some hints relative to the fitting-up of the Roentgen ray room in military hospitals.

The German Congress on Radiography.

The German Roentgen Society was founded in 1905 and held its second meeting on April 2nd in Langenbeck House, Berlin, Professor Eberlein being in the chair. The meeting was attended by about 350 members, including medical and scientific men from Germany and other European countries. After the inaugural business had been disposed of, Herr Walter of Hamburg read a paper on Secondary Cathode Rays. Dr. Lewy-Dorn of Berlin described some methods of ascertaining the energy of the rays necessary for therapeutic purposes and showed an instrument devised by Herr Holzknecht of Vienna consisting of a milliampèremeter, a dosimeter, and a quantimeter. He said, however, that the energy of the rays could not be measured by instruments but must be ascertained empirically in every individual case. Some patients showed a marked reaction to very short exposures, whilst in others no reaction occurred even to very long exposures. Professor Grunmach of Berlin showed instruments for investigating the upper jaw through the mouth and exhibited radiograms of alveolar hyperostosis of the jaw. Dr. Grassner of Cologne showed a case of osteomalacia combined with rachitis. Dr. Schmidt of Berlin showed patients suffering from lupus and cancroids successfully treated by Roentgen rays. Dr. Stegmann said that he had obtained favourable results with the rays in cases of Graves's disease. Dr. Weik of Breslau said that the rays were useful in superficial cancer but had no effect on deep-seated malignant growths.

A Case of Ochronosis.

At a recent meeting of the Berlin Medical Society Dr. Pick showed specimens of a case of ochronosis. The patient, who was a woman, 77 years of age, had suffered from varicose ulcers of the leg to which she had for years applied bandages moistened with a solution of carbolic acid. The diagnosis of ochronosis was made during life because of the brownish-yellow colour of the skin and the cyanotic colour of the ears and hands. She eventually died with symptoms of hyperpyrexia and the necropsy revealed hæmorrhagic encephalitis and endocarditis, together with intense yellow pigmentation, especially of the internal organs. The brownish pigmentation was well marked in the cartilages of the ribs, the intervertebral discs, the trachea, the larynx, the joints, the aorta, and the kidneys. Microscopical examination proved that the pigment was diffused in the tissues which, however, were not altered; it had no characteristic spectroscopic appearance, was free from iron, was soluble in alkaline fluids, and was very like melanin. Dr. Pick was of opinion that the pigment did not come from the blood; it must be regarded as the symptom of an anomaly of metabolism produced perhaps by chronic poisoning with carbolic acid. Ochronosis is a somewhat rare pathological condition, as only eight cases have hitherto been described.

April 16th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Indian Budget and Sanitation.

NOTWITHSTANDING the prosperous state of the Indian finances as shown by the recent Budget and the speeches thereon the Government makes but a single reference to any expenditure on sanitary improvement. This sole item is a contribution to the Calcutta improvement scheme. Lakhs of rupees are to be spent on railways, irrigation, education, and remissions of taxation, in fact, in nearly every branch of Government administration, but with this exception there is not even a reference to sanitary schemes in any one of the numerous speeches made at the recent important meeting of the Imperial Council. It is impossible that all sanitary questions can be left to the local governments or to local bodies and both of these are continually hampered in their efforts for sanitary improvements by want of funds. The improvement of the health of the people and of the unhealthy conditions in which they live is as much an Imperial question as the prevention of famine or the construction of irrigation works and should be more seriously considered by the Central Government. If ever a Health Minister were wanted it is on the India Council. The Central Government is not, however, wholly to blame as the Civil Department actually saved £38,800 on medical and £88,000 on scientific and minor departments by the failure of local governments to expend in full their allotment.

Malarial and Other Fevers in Bombay.

The inadequate way in which sanitary evils are dealt with is exemplified in the recent appointment by the Bombay Government of a committee to investigate the prevalence of malarial and other fevers. The committee consists of the Surgeon-General, the Sanitary Commissioner, the Director of the Plague Laboratory, and one or two other medical men—all having other numerous and regular duties to perform. It is impossible that their report can be exhaustive. Statistics of Bombay city show that the deaths from fevers have varied within wide limits. In 1880 there were returned 7513 deaths; in 1896 there were 8776 deaths; and in 1904 only 2416 deaths. The statistics of Bombay have frequently shown many peculiarities and even in the two months of the current year the excess mortality is not explained by the amount of plague.

Plague Statistics.

The returns of plague throughout India show that though the annual recrudescence is later in appearing it is developing rapidly. For the week ending March 17th there were 13,325 cases with 10,782 deaths, as against 10,655 cases and 9058 deaths for the previous seven days. Bombay returned 1498 deaths; Madras, 42; Bengal, 4278 (a large increase); United Provinces, 3365; Burma, 402; Central Provinces, 879; Mysore, 89; and Kashmere, 77. The disease which may be said to have established itself in Rangoon about this time last year has spread to many districts. Mandalay has been attacked and up to March 24th no less than 1060 deaths have been reported. Plague is stated to be increasing rapidly in both Calcutta and Bombay but the figures are not published. At Bassein, in Burma, more than 3000 people have been inoculated and up to the present not one of them has been attacked although several deaths from plague are occurring every week. It is very unsatisfactory to note that an officer of the Indian Medical Service was prosecuted at the instance of the health officer in Bombay for neglecting and failing to give timely information to the municipal authorities regarding a case of plague and was fined Rs. 30.

Malaria in Bengal.

The Bengal Government has lately appointed a committee to inquire into the drainage of certain areas which are marked by the prevalence of fever. The duties of the committee will be to ascertain in what areas malaria is now prevalent, to investigate the causes of the disease and in particular to determine whether it is due to obstructed drainage, where malaria has been caused by obstructed drainage to decide whether a drainage scheme is practicable, and to prepare a list of practicable drainage schemes. It is to be noted that this committee is to be composed of two civilians and the Sanitary Commissioner. Further comment is unnecessary.

March 31st.

Obituary.

ARTHUR BLACKWOOD, M.D. R.U.I.

By the death of Dr. Arthur Blackwood, of 100, Bedford-street, Liverpool, who died on April 6th, another martyr in the cause of medicine has gone to his rest. He graduated as Doctor of Medicine at the Royal University of Ireland in 1884 and soon afterwards became resident medical officer at the Liverpool workhouse hospital. Highly intelligent, upright, and honourable in character, he soon endeared himself to all at the hospital. He threw his best energies into the discharge of his duties and those seriously ill claimed his unremitting attention. Every indication gave promise of a useful and distinguished career until one day he was unwittingly inoculated in the finger in the discharge of his duties. His nervous system was rapidly affected and he became partially crippled and was subject to recurring attacks of ill-health for the rest of his life. He struggled manfully against his infirmities and as public vaccinator obtained the grant for excellent work year after year. An attack of pneumonia, acting upon an enfeebled frame, carried him off in a few days to the great regret of his numerous friends. He was about 44 years of age.

WILLIAM WOOD, M.B., C.M. EDIN., F.R.C.P. EDIN.

THE death of Dr. William Wood, of 5, Roxburgh-street and Denisla House, Edinburgh, occurred rather suddenly recently at Bridge of Allan, near Stirling, where he had gone for the benefit of his health. He was the eldest son of Mr. Frankland Wood, Sleights, Yorkshire, where he was born 41 years ago. After graduating in 1890 he started practice in Edinburgh and soon succeeded in building up for himself an extensive connexion. Some years ago he was appointed lecturer on materia medica and therapeutics and practical materia medica at the Edinburgh School of Medicine and was a very popular extramural teacher, attracting yearly a large class of students. He was also the author of "Elements of Practical Materia Medica and Pharmacy" and "Tables of Organic and Inorganic Materia Medica" and found time also for some original research. Though quiet and unassuming he was ever ready as a friend to offer counsel and advice, and his early death is a distinct loss to the profession and the community alike. He leaves a widow and three young children to mourn their loss.

JAMES MARTIN, L.R.C.P., L.R.C.S. IREL.

THE death is announced of Mr. James Martin of Newry which took place on April 7th at his residence in High-street. For more than ten years he enjoyed a large practice in Newry and the County Down and was most popular with all classes. He was a director of the Dundalk and Newry Steam Packet Company and was highly esteemed in commercial circles. His death at the age of 42 years after only a few days' illness has caused much sorrow in the town.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. J. J. Mertznich, who is described as the *doyen* of Cologne medical men, at the age of 97 years.—Dr. T. Gelpke, director of the ophthalmic department of the Carlsruhe Deaconesses Hospital.—Dr. Aubenas, formerly professor of gynæcology in Strasburg, originally under the French and afterwards under the German *régime*.—Dr. Anton Lobmayer, director of the Agram Institute for Obstetrical Instruction, member of Parliament, and author of many popular works on hygienic subjects. He was 61 years of age.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the primary examinations held recently the following candidates passed in the subjects indicated:—

PART I.

Biology.—M. C. Dence, Royal Free Hospital; W. H. Hooton, Leeds; and D. L. Schwabe, Royal Free Hospital.

Chemistry.—A. E. Hempleman, London Hospital; W. H. Hooton, Leeds; E. M. Johnstone, Royal Free Hospital; A. J. V. Mathews, St. Mary's Hospital; and D. L. Schwabe, Royal Free Hospital.

Materia Medica and Pharmacy.—C. J. M. Lawrence, Manchester; and G. W. Simpson, London Hospital.

PART II.

Anatomy.—S. H. Andrews, St. Bartholomew's Hospital; E. C. Banks, Manchester; H. R. Ibbotson and M. A. Kenny, Leeds; I. Pulteney, Royal Free Hospital; J. B. Tackaberry, Middlesex Hospital; A. D. Vernon-Taylor, Guy's Hospital; and G. F. Wilson, London Hospital.

Physiology.—S. H. Andrews, St. Bartholomew's Hospital; S. S. Brook Guy's Hospital; D. M. Hunt, London Hospital; H. R. Ibbotson, Leeds; W. K. Kershaw, Manchester; H. E. Middlebrooke, London Hospital; I. Pulteney, Royal Free Hospital; J. B. Tackaberry, Middlesex Hospital; A. D. Vernon-Taylor, Guy's Hospital; and G. F. Wilson, London Hospital.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following students of the above school successfully passed the examination in Tropical Medicine held at the end of the twentieth session, January to April, 1906:—

*Captain S. Anderson, I.M.S.; *Dr. H. E. Arbuckle; *Captain B. H. Dutcher, U.S. Army; Dr. A. G. Eldred (Colonial Service); Dr. H. Kramer; Dr. P. H. MacDonald (Colonial Service); Dr. B. Moiser (Colonial Service); *Dr. G. J. Pirie (Colonial Service); Dr. A. Reid; Dr. W. Rogers (Colonial Service); Dr. W. E. Ruttledge, and Dr. A. L. Wykham.

* With distinction.

UNIVERSITY OF ABERDEEN.—On April 5th the following received the degree of M.D.:—

*Lewis Davie Cruickshank, M.B., Ch.B., Darlaston; *John Charles Galloway, M.A., M.B., Ch.B., Banff; Thomas Holt, M.B., C.M., Burnley; George Hall Johnston, M.B., C.M., Wath-upon Dearne (under Old Regulations); Dudley Macdonald Mackenzie, M.B., Ch.B., London; Robert Mitchell, M.B., C.M., Doncaster (under Old Regulations); †Wilfred William Pearse, M.B., C.M., Hong-Kong (under Old Regulations); Alexander Rose, M.B., C.M., London (under Old Regulations); and Arthur Leslie Sutherland, M.A., M.B., Ch.B., Darwen.

* "Honours" for thesis. † "Highest honours" for thesis.

The following graduated M.B., Ch.B.:—

First-class honours.—John Frederic Gill, B.Sc., and William A. H. McKerrow.

Ordinary degrees.—Theodore Chalmers, G. F. Dawson, M.A., Mary W. Durno, A. D. Fraser, A. S. Garden, J. F. Grant, S. C. Howard, C. V. Impey, Adam Johnston, W. B. Keith, Arthur Kellas, A. S. Leslie, M.A., J. S. McConnachie, Joseph M. Macdonald, J. G. McGregor, E. K. Mackenzie, N. P. Macphail, Sophie J. Meik'ejohn, W. L. Millar, M.A., M. A. Milne, Stanley W. Munro, S. V. van

Niekerk, G. E. A. Petrie, James Raffan, Donald T. Skeen, F. J. Stuart, A. G. Troup, and W. H. Wishart, M.A., B.Sc.

TRINITY COLLEGE, DUBLIN.—At the Final Examination in Medicine held in Hilary term the following candidates were successful:—

Midwifery.—Ralph S. Oldham, John du P. Langrishe, Francis O'B. Ellison, William Hutcheson, Ernest D. Caddell, Thomas D. Graham, Thomas King Edwards, Henry D. Drennan, Michael P. Leahy, Alfred C. Elliott, Ernest C. Phelan, Reginald Holmes, Dudley F. Torrens, John Gray, and Francis Casement.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Paul Strassmann, *privat-docent* of Gynæcology, has been granted the title of Professor. Dr. Hermann Triepel of Greifswald has been appointed chief of one of the departments of the Anatomical Institute with the title of Honorary Extraordinary Professor.—*Gratz:* Dr. Arnold Wittek has been recognised as *privat-docent* of Orthopædic Surgery, and Dr. Ernst Moro as *privat-docent* of Children's Diseases.—*Leipsic:* Dr. Alfred Bielschowsky and Dr. Arthur Birch-Hirschfeld, assistants in the Ophthalmic Institute, have been appointed to extraordinary professorships.—*Marburg:* Dr. Arthur Heffter of Berne has been offered the chair of Pharmacology.—*Naples:* Dr. Francesco Mastrosimone has been recognised as *privat-docent* of Surgical Anatomy and Dr. Giuseppe Verrotti as *privat-docent* of Dermatology.—*Vienna:* As Professor von Noorden does not commence the duties of the chair of Medicine until the winter session the lectures will be delivered in the meantime by Dr. Wechsberg, first assistant in the Medical Clinic.—*Warsaw:* Dr. J. Fedorow, professor of Gynæcology, is retiring.

THE INFANTS' HEALTH SOCIETY.—In the third annual report of this society the section dealing with the Infants' Hospital, Denning-road, Hampstead, N.W., states that although the infants admitted during 1905 were pitiable specimens, suffering from diseases of malnutrition, and averaged 50 per cent. below the normal standard of weight, yet the rate of mortality was lower than the mortality rate of infants under one year of age in any of the large towns of the United Kingdom. This clearly shows that with ordinary care the rate of infantile mortality can be very considerably decreased. The Infants' Hospital having been established three years it is felt by the committee of management that the experimental stage has been passed through and that the time has arrived when the hospital should be put upon a permanent basis. With this view the committee has under consideration a proposal to remove the hospital to a more central situation where accommodation may be provided for 40 infants and facilities given for the study of infant treatment which is not to any special extent provided in the leading London hospitals. The address of the secretary is 120, Victoria-street, London, S.W.

SCHOLARSHIPS FOR STUDENTS OF MIDWIFERY.—For the purpose of helping women in need of pecuniary assistance in obtaining a training as midwives the London Council Council is offering a number, not exceeding 12 a year, of scholarships of the value of £25 to suitable candidates from 24 to 40 years of age and ordinarily resident within the County of London. Candidates must satisfy the Council as to their need for assistance in obtaining this training and must enter into a bond with sureties to practise as midwives for two years within the Administrative County of London. They will be required to pass a qualifying examination equivalent to Standard VI. of the elementary school code, and preference may be given to those who produce evidence of a satisfactory training in nursing or who have had practical experience of sick nursing among the poor. The scholarships are to be applied in part payment of the fees for tuition, board, and lodging at one or another of the institutions recognised by the Central Midwives Board and approved by the County Council. The training necessary for the purpose of obtaining a certificate as a midwife at the present day is by no means an inexpensive one and this scheme of the London County Council will no doubt be of great assistance to many deserving women. Undoubtedly there will come a time when the supply of properly trained midwives will fall short of the requirements in most parts of the country and unless some help is forthcoming for those women who wish to take up this branch of nursing and who are unable to afford the expense entailed it will be difficult to meet the demand for trained midwives. This scheme of the London County Council should certainly prove successful and we hope that the county councils may see their way to promulgate similar schemes. It will certainly be money well spent.

THE University of Boston has invited Dr. Schott of Nauheim to lecture there next winter on Diseases of the Heart and their Treatment.

DEATH OF A CENTENARIAN.—The *Times* of April 17th states that Mrs. Isabel Stirling Waddell died on April 16th at Park Cottage, Cathcart, Glasgow, at the age of 104 years. She claimed to be the oldest woman in Scotland and was hale and hearty to the last.

THE UNIVERSITY OF BIRMINGHAM.—The following lectures are announced:—Professor J. T. J. Morrison will deliver a course of three lectures on the Legal and Social Relations of English Medicine, Past and Present, on Thursdays, April 16th, and May 3rd and 10th; a course of three lectures on Medical Ethics will be delivered on Thursdays, June 7th, 14th, and 21st, at 4 o'clock, by Professor R. Saundby; and the Ingleby Lectures for 1906 will be delivered on Thursdays, May 17th and 24th, at 4 o'clock, by Dr. C. E. Purslow, obstetric officer to the Queen's Hospital, Birmingham, who has taken for his subject, the Management of a Case of Labour. The lectures will be delivered in the Medical Lecture Theatre and members of the medical profession and medical students are invited to attend.

DONATIONS AND BEQUESTS.—The executors of the late Mrs. M. A. Irwin have paid over to the Metropolitan Convalescent Institution the sum of £2316 19*s.*, being one moiety of the ultimate residue of the testatrix's estate.—By the will of the late Mr. F. J. Horniman the following bequests are made: £1000 to the London Hospital, £1000 to the Sussex County Hospital at Brighton, £1000 to the Croydon General Hospital, £1000 to the Convalescent Home and Hospital at Lower Sydenham, £1000 to St. Mary's Hospital, Paddington, £500 to the Cornwall Convalescent Home for Men at Perranporth, under the management of the Royal Cornwall Infirmary, £1000 to the General Hospital at Truro, £1000 to the South Devon and East Cornwall Hospital, Plymouth, £500 to the Royal Cornwall Infirmary at Truro, and £1000 to the Surgical Aid Society.—The British Home and Hospital for Incurables, Streatham, has received a donation of £605 from "M. E. D."—As a result of the recent appeal to the Stock Exchange on behalf of the rebuilding fund of St. Bartholomew's Hospital the treasurer has received £2000. This is in addition to upwards of £1600 previously subscribed by members of the Stock Exchange for the same purpose.

SOCIETY OF ARTS.—The fourth and last Cantor lecture on Fire and Fire Risks was delivered at the Society of Arts by Professor Vivian B. Lewes on April 2nd. He said that in building construction oak beams were much safer than iron joists or girders in the event of fire breaking out. The high conductivity of metals was a serious drawback from this point of view, because, in the first place, a girder of some length would elongate by heat and tend to cause bulging of walls and, in the second place, thin iron partition doors in warehouses soon became red-hot and ignited material which was on the further side of them from the original fire. It must be more than 300 years since the first attempts were made to render wood non-inflammable, but it is only during the last 10 or 15 years that success has been attained—namely, by the use of a method which saturates the wood from the surface to the core with the fire-proofing material. Many chemicals have been suggested for this purpose, but the most useful of these antipyrenes, as they are now called, are ammonium phosphate and boric acid. In the fire-proofing process the timber is placed in large cylinders from which the air is extracted; the chemical solution is then run in and hydraulic pressure is used to force it into the timber. Rather more than four pounds of chemicals are thereby introduced into each cubic foot of wood. Wood treated in this way possesses all its original properties except that when held in a flame it only smoulders without taking fire. Small jets of flame sometimes make their appearance, due not to the burning of the wood but to the ignition of volatile hydrocarbons produced by the action of the heat. After a short reference to the fire risks connected with

the industrial applications of electricity Professor Lewes spoke of the fire-proofing of dress materials by moistening them with boram (a substance which some of our readers may remember on account of a notice of it which appeared in THE LANCET of July 22nd, 1905, p. 264. When fire broke out in a theatre the danger to the audience was not so much from the fire itself as from the panic caused by the sight and smell of smoke. The method of ventilation followed in theatres caused a strong draught of air from the stage to the auditorium, which carried the smell of smoke at once over the whole house. Professor Lewes described a system by which this draught could be greatly reduced.

LITERARY INTELLIGENCE.—A new journal with international aspirations, the *Journal of Abnormal Psychology*, has been started in Boston, U.S.A. It will be published bi-monthly and the editorial management will be under the direction of Dr. Morton Prince, professor of nervous diseases, Tufts College Medical School, with whom are coöperating, among others, Dr. Hugo Münsterberg, professor of psychology, Harvard University; Dr. Charles L. Dana, professor of nervous diseases, Cornell University Medical School, New York; Dr. James J. Putnam, professor of nervous diseases, Harvard Medical School, Boston; Dr. August Hoch, Bloomingdale Asylum, New York; and Dr. Adolf Meyer, director of the Pathological Institute, New York State Hospitals. The journal is meant to serve the interests of both medical science and psychology and is primarily intended for the publication of articles embodying clinical and laboratory researches in abnormal mental phenomena. The field of investigation includes, for instance, such subjects as hysteria, hallucinations, delusions, amnesias, aboulias, aphasias, fixed ideas, obsessions, automatisms, alterations of personality, multiple personality, dissociation of consciousness, subconscious phenomena, relation of the mind to physiological processes, and neurasthenic and psychasthenic states. In discharge of its international functions the journal will contain articles printed in French or German if expressly requested by the author. Communications should be addressed to Dr. Morton Prince, 458, Beacon-street, Boston.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of the above society was held on April 11th, Mr. Alfred Willett, Vice-President, being in the chair. 12 members were present. Since the last court three widows, annuitants of the charity, had died; one had received the sum of £697 in grants, another £372, and the third £651 10*s.*; their husbands had each paid in subscriptions only £52 10*s.*, being the amount representing 25 years' subscriptions, after paying which no further payments were required. The death of one of the directors was reported. An application for relief was received from the widow of a late member and a grant at the rate of £50 per annum was recommended. Ten letters had been received since the last court from widows of medical men asking for relief, but this had to be refused owing to the fact that their husbands had not been members of the society. Proposals for membership from three medical men were considered and the three were duly elected. The amounts received by the annuitants compared with the aggregate sum of subscriptions are striking evidence of the great advantages of this society which cannot be too strongly urged upon the members of the medical profession resident within 20 miles of Charing Cross. Full particulars will be sent on application to the secretary. The annual general meeting will be held on Thursday, May 3rd, at 5.30 P.M., at the offices of the society, 11, Chandos-street, Cavendish-square, London, W.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 11TH.

Overcrowding in Cities.

Mr. DUNDAS WHITE asked the Secretary for Scotland whether he was aware that according to the recent investigations of Mr. Arthur Sherwell, one-third of the population of Edinburgh and one-half of the populations of Glasgow and Dundee lived under conditions of overcrowding; and what steps, if any, it was proposed to take in the matter.—Mr. SINCLAIR answered: In spite of inquiry it has not been found possible as yet to obtain any published result of Mr. Sherwell's investigations. If supplied with the data on which the question is based it shall receive my consideration.

Infant Mortality.

Mr. DUNDAS WHITE asked the Secretary for Scotland what were the death-rates among infants less than a year old throughout Scotland as a whole, and in Edinburgh, Glasgow, Aberdeen, and Dundee respectively, for the year 1905; whether these death-rates were excessive; and what steps, if any, it was proposed to take in the matter.—Mr. SINCLAIR replied: The facts for the four burghs for the year 1905 are as follows—Edinburgh, 124·8; Glasgow, 130·8; Aberdeen, 138·5; and Dundee, 132·5. While these figures could hardly be called excessive as compared with those of other large towns in the United Kingdom there is no doubt that it is possible to reduce them. It is hoped that the steady improvement in sanitation will conduce to this. In addition, steps have been taken in Glasgow and Dundee to deal directly with the question by the appointment of health visitors, lay and medical, and by the establishment of municipal depôts for sterilised milk. Similar measures are under consideration in Edinburgh and Aberdeen.

Coloured Medical Men and the West African Medical Service.

Mr. NOLAN asked the Under Secretary of State for the Colonies whether coloured medical men of African origin or descent were excluded from the West African Medical Service; and, if so, upon what grounds.—Mr. CHURCHILL answered: Coloured medical men of African origin or descent are ineligible for the West African medical staff but are eligible for certain other public appointments in the Gold Coast, Sierra Leone, and Lagos. The West African medical staff is constituted principally for the purpose of safeguarding the health of the European officials of the colonial governments; and West African native medical officers would not, as a rule, command the confidence of these Europeans.

BOOKS, ETC., RECEIVED.

APPLETON, SIDNEY, 25, Bedford-street, Covent Garden, London, W.C.

The Real Triumph of Japan: the Conquest of the Silent Foe. By Louis Livingston Seaman, M.D., LL.D., late Surgeon-Major, U.S., V.E., Author of "From Tokio Through Manchuria with the Japanese," &c. Price 6*s.* net.

ARROWSMITH, J. W., 11, Quay-street, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

A Soul's Wayfaring. A Series of Interviews with "Romanus," formerly an Anglican Rector. By "Z," Special Reporter of the Psychological Examiner. Price 3*s.* 6*d.*

JOHN BALE, SONS, AND DANIELSSON, LIMITED, 83-91, Great Titchfield-street, Oxford-street, London, W.

Modern Surgical Technique in its Relation to Operations and Wound-Treatment. By C. Yelverton Pearson, M.D., M.Ch., F.R.C.S., Professor of Surgery, Queen's College, Cork, Fellow and Examiner in Surgery, Royal University of Ireland. Price 10*s.* 6*d.* net.

On Means for the Prolongation of Life. Second and enlarged edition of a Lecture delivered before the Royal College of Physicians, on Dec. 3rd, 1903. By Sir Hermann Weber, M.D., F.R.C.P., Consulting Physician to the German Hospital, the National Hospital for Consumption, Ventnor, and the Mount Vernon Hospital for Consumption. Price 2*s.* 6*d.* net.

BOOTHROYD, ELIOT, Leighton House, Fleet-street, London, E.C.

Low's Handbook to the Charities of London, 1906. Seventy-first year of publication. Price 1*s.*

CHURCHILL, J. AND A., 7, Great Marlborough-street, London, W.

An Essay on the General Principles of the Treatment of Spinal Curvatures. By Heather Bigg, F.R.C.S. Ed. Price 5*s.* net.

The Pharmacopœia of the Evelina Hospital for Sick Children, Southwark. Third edition. Price 1*s.* 6*d.*; by post 1*s.* 7*d.*

Rational Organotherapy with Reference to Urosemiology. By Prof. Dr. A. von Poehl, Prof. Prince J. von. Tarchanoff, Dr. Alf. von Poehl, Dr. P. Wachs. Translated from the Russian text. Vol. I. Price 7*s.* 6*d.* net.

Pathology, General and Special. For Students of Medicine. By R. Tanner Hewlett, M.D., M.R.C.P., D.P.H., Professor of General Pathology and Bacteriology in King's College, London. Price 10*s.* 6*d.* net.

Heath's Manual of Minor Surgery and Bandaging. For the Use of House Surgeons, Dressers, and Junior Practitioners. Thirteenth edition. Revised by Bilton Pollard, F.R.C.S., Surgeon to University College Hospital and Teacher of Operative Surgery in University College, London, Member of the Court of Examiners of the Royal College of Surgeons. Price 6*s.* net

On Physical Training in Schools. By W. P. Herringham, M.D., F.R.C.P., Physician and Lecturer on Forensic Medicine at St. Bartholomew's Hospital. The Influence on National Life of Military Training in Schools. By T. C. Horsfall. Two Addresses delivered before the Medical Officers of Schools Association, Feb. 15th, 1906. Issued by the Association. Price 1*s.*

COLLINGRIDGE, W. H. AND L., "CITY PRESS" OFFICE, 148 and 149, Aldersgate-street, London, E.C.

The City of London Directory for 1906. The 36th Annual Edition. Price 12*s.* 6*d.*

CURRIE, JOHN, 15, Shandon-place, Edinburgh.

Handbook of Surgery. By George Burnside Buchanan, B.A. Cantab., M.B., C.M., F.F.P.S. Glasg., Assistant Surgeon, Western Infirmary, Glasgow, Assistant Surgeon, Glasgow Cancer Hospital. Price 9*s.* net.

DENT, J. M., AND CO., 29 and 30, Bedford-street, London, W.C.

The Temple Cyclopædic Primers. Price 1*s.* net. Food in Health and Disease. By H. Drinkwater, M.D. With Preface by T. R. Bradshaw, B.A., M.D., F.R.C.P.

F. A. DAVIS COMPANY, 1914-16, Cherry-street, Philadelphia, U.S.A.

The Examination of the Function of the Intestines by means of the Test-Diet, its Application in Medical Practice and its Diagnostic and Therapeutic Value. By Prof. Dr. Adolf Schmidt, Physician-in-chief of the City Hospital, Friedrichstadt in Dresden. Authorised Translation from the latest German edition by Charles D. Aaron, M.D., Professor of Diseases of the Stomach and Intestines in the Detroit Post-Graduate School of Medicine. Price $1.00 net.

DORNAN, WILLIAM J., Philadelphia, U.S.A.

Transactions of the American Gynecological Society. Vol. XXX. For the Year 1905. (Dr. J. Riddle Goffe, Secretary, 29, West 46th Street, New York City.) Price not stated.

Transactions of the American Surgical Association. Vol. XXIII. Edited by Richard H. Harte, M.D., Recorder of the Association. Price not stated.

FISCHER, GUSTAV, Jena.

Mittheilungen aus dem Laboratorium für radiologische Diagnostik und Therapie im k.k. allgemeinen Krankenhaus in Wien. Herausgegeben von Dr. Guido Holzknecht, Privatdozent für medizinische Radiologie an der Universität in Wien. Erster Band. Erstes Heft. Die radiologische Untersuchung des Magens. Price M.3.

Geschichte der Geburtshülfe. Von Dr. Heinrich Fasbender, a.o. Professor der Medizin an der Universität zu Berlin. Price M.25.

GLAISHER, HENRY J., 57, Wigmore-street, Cavendish-square London, W.

The Anæsthetic Technique for Operations on the Nose and Throat. Based on Lectures delivered during the Session 1905-6 at the North-East London Post-Graduate College. By A. de Prenderville, Senior Anæsthetist to the London Throat Hospital, W. Price 3s. 6d. net.

GRIFFIN, CHARLES, AND CO., LIMITED, Exeter-street, Strand, London, W.C.

A Handbook of Medical Jurisprudence and Toxicology. For the Use of Students and Practitioners. By William A. Brend, M.A. Cantab., M.B., B.Sc. Lond., of the Inner Temple, Barrister-at-Law. Price not stated.

HEINEMANN, WILLIAM, London.

The Jungle. By Upton Sinclair. Price not stated.

HOLT, HENRY, AND COMPANY, New York.

Problems of Babyhood. Building a Constitution, Forming a Character. By Rachel Kent Fitz, A.M., and George Wells Fitz, M.D., Sometime Assistant Professor of Physiology and Hygiene and Medical Visitor, Harvard University. Price not stated.

KELLY AND WALSH, LIMITED, 32, Raffles-place and 194, Orchard-road, Singapore.

A Vocabulary of Malay Medical Terms. By F. N. Gerrard, B.A., B.Ch., B.A.O., M.D. Dub. Univ., D.T.M.H. Univ. Cantab., District Surgeon, F.M.S. Medical Service. Printed with the Assistance of the Federated Malay States Government. Price not stated.

LANE, JOHN, The Bodley Head, Vigo-street, London, W.

X-Rays in General Practice. By A. E. Walter, Captain, I.M.S., Superintendent of the X-Ray Institute of India. Price 5s. net.

LAURIE, T. WERNER, Clifford's Inn, Fleet-street, London, E.C.

Reminiscences of a Country Politician. By John A. Bridges, J.P., Worcestershire. With Frontispiece Portrait. Price 8s. 6d. net.

J. B. LIPPINCOTT COMPANY, 5, Henrietta-street, Covent-garden, London, W.C.

The Practice of Pharmacy. Fourth edition. By Joseph P. Remington, Ph.M., Phar.D., F.C.S., Chairman of the Committee of Revision of the Pharmacopœia of the United States of America, Professor of Theory and Practice of Pharmacy, and Director of the Pharmaceutical Laboratory in the Philadelphia College of Pharmacy. Price 25s. net.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, London, New York, and Bombay, and CHARITY ORGANISATION SOCIETY, Denison House, Vauxhall Bridge-road, London, S.W.

The Annual Charities Register and Digest. Fifteenth Edition. By C. S. Loch, Secretary to the Council of the Charity Organisation Society, London. Price 5s. net.

Plant Response as a Means of Physiological Investigation. By Jagadis Chunder Bose, M.A., D.Sc., Professor, Presidency College, Calcutta. Price 21s.

MARHOLD, CARL, Halle a.S.

Affektivität, Suggestibilität, Paranoia. Von E. Bleuler, o. Prof. der Psychiatrie in Zürich, Burghölzli. Price M.3.

MASSON ET CIE, 120, Boulevard Saint-Germain, Paris.

Eléments d'Électrothérapie Clinique. Par A. Zimmern, Ancien Interne des Hôpitaux de Paris. Préface de J. Bergonié, Professeur de Physique Biologique et Électricité Médicale à l'Université de Bordeaux. Price not stated.

Traité de Chirurgie d'Urgence. Par Félix Lejars, Professeur Agrégé à la Faculté de Médecine de Paris, Chirurgien de l'Hôpital Saint-Antoine, Membre de la Société de Chirurgie. Cinquième édition, revue et augmentée. Price Fr.30.

MURRAY, JOHN, 50A, Albemarle-street, London, W.

The Morphology of Normal and Pathological Blood. By George A. Buckmaster, D.M. Oxon., University College, London, formerly Radcliffe Fellow, Magdalen College, Oxford. Price 10s. 6d. net.

PENTLAND, YOUNG J., Edinburgh and London.

Handbook of Obstetric Nursing. By Francis W. N. Haultain, M.D., F.R.C.P. Ed., Lecturer on Midwifery and Diseases of Women, School of Medicine, Physician for Diseases of Women, Deaconess Hospital; and James Haig Ferguson, M.D., F.R.C.P. Ed., M.R.C.S. Eng., Lecturer on Midwifery and Diseases of Women, School of Medicine and Jubilee Institute for Nurses. Fifth edition, revised and enlarged. Price 5s.

PHARMACEUTICAL JOURNAL OFFICE, 72, Great Russell-street, London, W.C.

The Pharmacy Student's Note-Book. Edited by John Humphrey. Price not stated.

W. B. SAUNDERS COMPANY, 9, Henrietta-street, Covent Garden, London, W.C.

Diseases of the Eye. A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. de Schweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania and Ophthalmic Surgeon to the University Hospital. Fifth edition, thoroughly revised. Price 21s. net.

SCIENTIFIC PRESS, LIMITED, 28 and 29, Southampton-street, Strand, London, W.C.

Simple Introductory Lessons in Midwifery. By M. Loane, Author of "Outlines of Routine in District Nursing." Price 1s. net.

SHERRATT AND HUGHES, Publishers to the Victoria University of Manchester, 27, St. Ann-street, Manchester, and 60, Chandos-street, London, W.C.

Studies in Anatomy from the Anatomical Department of the University of Manchester. Vol. III. Edited by Alfred H. Young, M.B. Edin., F.R.C.S., Professor of Anatomy. Price 10s. net.

THACKER, SPINK, AND CO., Calcutta (W. THACKER AND CO., 2, Creed-lane, London, E.C.)

Indian Toxicology. By F. N. Windsor, Captain, I.M.S., M.B., M.R.C.S., B.A., B.Sc., Chemical Analyst and Bacteriologist to the Government of Burmah. Price Rs.3.

WILLIAMS AND NORGATE, 14, Henrietta-street, Covent Garden, London, W.C. (For the University Press of Liverpool.)

The Thompson Yates and Johnston Laboratories Reports. Vol. VI. (New Series), Part II., December, 1905. Trypanosomes; Human Tick Fever; the Ornithodoros moubata (Murray); the Marine Mosquito. Price not stated. Vol. VII. (New Series), Part I., February, 1906. A New Pathogenic Louse; Anatomy of Gastrodiscus hominis; Revision of the Sarcopsyllidæ; the Malotic Process in Mammalia. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

JONES, H. TRAVERS, M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer at the Hospital for Epilepsy and Paralysis, Maida Vale, W.

LENNANE, GERALD QUIN, F.R.C.S. Eng., L.R.C.P., has been appointed Medical Officer of Health of the Borough of Battersea.

MACGILVRAY, W. J. HOOKER, L.R.C.P., L.R.C.S., L.M. Edin., L.F.P.S., L.M. Glasg., has been appointed Medical Officer to Fallowfield and Withington District of the Royal Rusholme Provident Dispensary, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARBADOS GENERAL HOSPITAL.—Junior Resident Surgeon. Salary £200 per annum, with quarters.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 with fees.

BIRMINGHAM, UNIVERSITY OF.—Assistant Lecturer on Pathology and Bacteriology. Stipend £250 per annum.

BODMIN, CORNWALL COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £135 per annum, with board, apartments, washing, &c.

BRITISH LYING-IN HOSPITAL.—Physician.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CARLISLE NON-PROVIDENT DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C. —Third Registrar (honorary).

CHARING CROSS HOSPITAL.—Assistant Physician.

CRONSTADT, SEAMEN'S HOSPITAL.—Resident Medical Officer. Salary £180 per annum, with lodgings, lights, fuel, and attendance.

DOUGLAS, ISLE OF MAN, NOBLE'S ISLE OF MAN HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 a year, with board and washing.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Third House Surgeon. Salary £50.

ESSEX AND COLCHESTER GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and residence. Also Honorary Assistant Surgeon.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Surgeon.

FAZAKERLEY, CITY OF LIVERPOOL INFECTIOUS DISEASES HOSPITAL.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

HALSTEAD UNION.—Medical Officers for Fourth and Fifth Districts. Salary of former £36 per annum and fees and of latter £70 per annum and fees.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £200 per annum, with board, apartments, and washing.

HEMEL HEMPSTEAD, WEST HERTS INFIRMARY.—House Surgeon and Assistant Secretary, unmarried. Salary £110, with rooms, board, fire, lights, washing, and attendance.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

HULL ROYAL INFIRMARY.—Honorary Assistant Ophthalmic Surgeon. Also House Physician, unmarried. Salary 80 guineas per annum, with board and apartments.

LANCASTER, ROYAL ALBERT ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £125 per annum, with board, apartments, and washing.

LEICESTER INFIRMARY.—Assistant Surgeon.

LISCARD, WALLASEY DISPENSARY AND VICTORIA CENTRAL HOSPITAL.—House Surgeon. Salary £100, with apartments, board, and service.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board and residence.

MANCHESTER, HULME DISPENSARY, Dale-street.—Honorary Surgeon.

MONTROSE ROYAL ASYLUM, Sunnyside, Montrose.—Senior Assistant Medical Officer. Salary £200 per annum, with board, lodging, &c.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary £70 per annum, with board, residence, and washing.

OLDHAM INFIRMARY.—Junior House Surgeon. Salary £75 per annum, with board, residence, and laundry.

OXFORD, LITTLEMORE PAUPER LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £120, rising to £150, with rooms and board.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—Second Honorary Anæsthetist.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary at rate of £50 per annum first six months, £75 per annum after, with board, apartments, washing, and attendance.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

VIRGINIA WATER, SURREY, HOLLOWAY SANATORIUM, St. Ann's Heath.—Junior Assistant Medical Officer. Salary £175 per annum, with board, lodging, washing, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Junior House Surgeon, unmarried. Salary £100 per annum, with residence and board.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £50 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Anæsthetist. Also Second Assistant Anæsthetist. Also Casualty Surgeon.

Births, Marriages, and Deaths.

BIRTHS.

BURGESS.—On April 14th, at 195, High-street, Oxford-street, Manchester, the wife of Arthur H. Burgess, F.R.C.S., of a son.

COLTART.—On April 15th, at Granville House, Fulham, the wife of Guy H. Coltart, M.B. Lond., M.R.C.S., L.R.C.P., of a son.

MARSHALL.—At 25, Chester-street, Edinburgh, on April 12th, the wife of Major D G. Marshall, I.M.S. (retired), of a son.

REIDY.—On April 13th, at 314, Commercial-road, E., the wife of J. Reidy, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., of a son.

SHELDON.—On April 14th, at Cornwall-road, Notting-hill, W., the wife of Walter Sirr Sheldon, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

STEPHENS.—On April 11th, at Seaforth House, Hoylake, Cheshire, the wife of J. W. W. Stephens, M.D. Cantab., of a son.

WARREN.—On Sunday, April 15th, at 15, Lansdowne-crescent, W., the wife of Alfred C. Warren, M.A., M.R.C.S., L.R.C.P., of a son.

WILSON.—On April 12th, at Ripon-road, Harrogate, the wife of H. Douglas Wilson, M.D., of a daughter.

MARRIAGES.

ELLIS—BARNES.—On the 18th April, 1906, at St. Mary's Church, Kippington, near Sevenoaks, Kent, by the Rev. H. Percy Thompson, M.A., assisted by the Rev. H. T. Knight, M.A., Leonard Erasmus Ellis, M.D. Brux., M.R.C.S Eng., L.R.C.P. Lond., L.S.A. Lond., of Clarendon Park, Leicester, to Evelyn le Hunte, only daughter of J. F. E. Barnes, Esq., C.M.G., M.I.C.E., of Pietermaritzburg, Natal.

SUTHERLAND—SUTHERLAND.—On April 11th, at Trinity Presbyterian Church, Clapham-road, S.W., John Sutherland to Annie Christina Sutherland, M.D.

DEATHS.

HALL.—On Good Friday morning, April 13th, 1906, at "Tresco," Ballards-lane, Finchley, N., Charlotte, wife of James Hall (formerly of West Bromwich) and mother of J. Field Hall, M.B., in her 73rd year.

TIMES.—On April 10th, at Exmouth, Devon, Lawrence Kingston Times, M.R.C.S., late of Manchester-street, London, W., aged 60.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

BOOKS BOUND IN HUMAN SKIN.

In the museum of the Bristol Royal Infirmary is a book which possesses one particular feature that certainly is not attractive yet seldom fails to arouse interest when attention is drawn to it. The book on superficial examination presents no very striking appearance. In aspect, it is nothing more than a moderately old volume bound in embossed leather and discoloured by age. In the centre of the cover is a representation of a gallows with the words below, "Cutis vera Johannis Horwood." Inside the covers are numerous legal and other documents that tell much about John Horwood. There are copies of statements as to what he did, descriptions of how he met with his death and of what happened to his body after death, even to details of the method by which his skin was tanned. Such an extract as the following gives some insight into the chain of events recorded. "Let him be hanged by the neck until he shall be dead, on Friday the thirteenth day of April instant, and let his body be delivered to Mr. Richard Smith of the city of Bristol, surgeon, to be anatomised." The last clause gives the name of the gentleman responsible for the curious book and shows also that the unfortunate man had been put into his hands by the law. John Horwood was a lad, aged 18 years, who, angry with a girl, had thrown a stone at her, which fractured and indented her skull. Death followed a surgical attempt to raise the depressed bone but although treatment then failed in these days of antiseptic surgery the girl would very probably have recovered. When this fact is borne in mind the following remarks of the surgeon, Mr. Richard Smith, have an especially melancholy interest. On the day of execution he was present in a room in which the prisoner said farewell to some of his friends. The description by the surgeon of what happened after the farewell runs as follows. "He now wrung his hands bitterly and seemed in great distress and said 'O Lord! O Lord!'" Having been bound by the attending constables he was led out, the chaplain reading the burial service. "Almost everyone was greatly affected, many shed tears. I certainly at the moment felt an indescribable sensation of depression and lowness of spirits." The surgeon who, no doubt, had been present at many death-beds and operated in the days before chloroform was used to abolish the pain of operations, and consequently was not only familiar with death but in discharging his daily duties often caused great suffering, watched the scene until the noose was adjusted round the prisoner's neck, and then he says, "My courage, if courage it is to be called, failed me. I perceived that the fatal moment was approaching and was unable to look any longer upon the criminal."

Such were the feelings of the man who afterwards had the unfortunate youth's skin tanned in order to make a book cover. How complex is human nature! Many other aspects of human nature are to be seen when looking through the numerous documents connected with the trial. There is, for example, no waste of words to express sentiment in the following note at the foot of one of the papers by an officer of the Crown: "Mem. Saw him executed accordingly. C.S." Such a brief, business-like record reminds us of the illustrations which the historian Green gives of the way in which Thomas Cromwell "ticked off men's lives" amongst daily "items," even when the life was that of no less a personage than Sir Thomas More. "Item, to know the King's pleasure concerning Master More." In another field we may compare Captain Broke's laconic entry in his diary:—"A.M. Wrt. Lawrence. P.M. Took Chesapeake." There are several other instances of books bound in human skin. One especially notable is in the Athenæum at Bury St. Edmunds and is an account of the trial of William Corder, murderer of Maria Martin. The case is well known as the Red Barn murder and the discovery of the murder was made through a dream. Corder's skin was tanned for the purpose by George Creed, surgeon to the Suffolk General Hospital. A humorous side to the tragedy is given by a tale told by Macready to J. M. Bellew. Corder was hanged on August 11th, 1828, and on the same night Macready took the part of Macbeth at Drury Lane. When Duncan asked, "Is execution done on Cawdor?" a voice from the gallery said, "Yes, sir, he was hung at Bury this morning."

REFEREES IN LIFE ASSURANCE.

To the Editors of THE LANCET.

SIRS,—As I am always interested in matters relating to life assurance I should like to call your attention to a paper lately received from the Gresham Life Assurance Society. I was referred to as a "*friend*" of a widow, about 50 years of age, the secretary adding a line, "*kindly note there is no fee payable for this report.*" I have often been referred to as a *friend* for a non-medical report but have never seen such a list of questions put to a layman. In fact, nearly all the questions are medical—except, perhaps, the second, where I am asked if she is of undeniable character and if her statements may be relied upon. Her *moral* character might be very bad but that is scarcely wanted by most offices. But to ask a layman if a lady has suffered from gravel or stone or rupture, amongst other diseases is, to say the least of it, peculiar. Very often the vicar of a parish is

referred to and in this case it would have been hard on our vicar who is unmarried. If you could give space enough to print questions 7 and 10 in full it will show your readers the sort of questions a layman is expected to answer whether about a man or a woman. I wrote to the medical officers of the Gresham. They courteously replied and said the fact of a friend given for reference being a doctor was a pure accident. This, of course, I was aware of. But they evidently expect these questions about gravel, dropsy, &c., to be generally answered by a layman.

I am, Sirs, yours faithfully,

Highgate, April 10th, 1906. GEORGE FLETCHER, M.D. Cantab.

*** Questions 7 and 10 to which our correspondent refers are as follows: "7. Do you know, or have you any reason to believe, that she has been afflicted with gout, asthma, habitual cough, spitting of blood, insanity, apoplexy, dropsy, rupture, fits, gravel, stone, or any other disorder that has a tendency in any way to shorten life? Has she ever received any severe injury? 10. How many brothers and sisters has she living? and what is the state of their health? How many brothers and sisters are dead? At what ages and of what complaints did they die?" We quite agree with our correspondent that to ask a friend to answer such questions is extraordinary and, perhaps, it is even more so to expect him to answer them. Medical matters are now discussed in society with great freedom and with a corresponding amount of ignorance but we hardly think that the average layman would be prepared to say whether any given friend was free from, or afflicted with, any or all of the complaints mentioned in Question 7. If life assurance offices are going to continue to ask laymen such questions they might bring a little joy into the matter by adopting Artemus Ward's delightful census paper, one question in which ran, "Have you had the measles and, if so, how many?"—ED. L.

LOCAL GOVERNMENT BOARD ECONOMY.

THE Local Government Board is demurring to the refunding of £3 3*s.* paid by Mr. B. Neal, medical superintendent of the Wandsworth workhouse infirmary, to Dr. S. Spicer in respect to an operation performed on an inmate. The guardians were notified at their meeting on April 12th that the Board had inquired why it was necessary to call in "an outside medical practitioner, having regard to the permanent medical staff at the infirmary." It appeared from statements made by guardians that the inmate, a young woman, had suffered from an affection of the nose and throat and that an operation had been performed by Dr. Spicer with complete success. Indeed, according to a lady member of the board of guardians, the surgical operation had produced a most satisfactory effect on the girl's character and temperament, for whereas formerly she was "naughty" and could not keep a place she had now become a model domestic servant. In the circumstances the board considered that the specialist's fee of £3 3*s.* was money admirably laid out and with one voice they agreed that Mr. Neal ought to have the amount refunded to him. Canon Curtis, the chairman, said it seemed to him that it was a question of differentiating between the rich and the poor. People in comfortable circumstances had obtained for them the very best advice possible. He did not see why the like should not be done for the poor. It could not be expected that the medical staff of the infirmary would have a specialist's knowledge and skill. The guardians decided to send particulars of the case to the Local Government Board.

IS BARLEY WATER A SUITABLE FOOD FOR INFANTS?

To the Editors of THE LANCET.

SIRS,—It is probable that infants may digest barley water in some circumstances at any rate. Some years ago I was called to see an infant, six months old, and inquiring into the diet as the mother had no milk I was assured that it had absolutely nothing but barley water since birth; it was pale and thin but not starving as I expected and soon recovered and grew when milk was added to the diet with a little sugar and salt.—I am, Sirs, yours faithfully,

April 14th, 1906. W. M. KNIPE, M.R.C.S. Eng., L.S.A.

To the Editors of THE LANCET.

SIRS,—Having read the letters of "Curia," "M.R.C.S., L.R.C.P." and "Ceres" on the subject of barley water, &c., instead of plain water as a diluent for milk in infant feeding and considering that barley water, &c., are added to milk very often with the supposed object of aiding the digestion of casein when the real cause of the trouble may be a too high percentage of proteid, I think, therefore, it would be of very great interest if your correspondents, "Curia," "M.R.C.S., L.R.C.P." and "Ceres," would tell us what percentage of proteid it is their practice to give to normal infants at the following ages: two weeks, one month, three months, and six months.

Also will "Ceres" explain more fully his meaning of this sentence, used by him in his letter of April 7th, 1906, p. 1013. "It will be found that by this process the casein is prevented from curdling and the caseinogen modified." Is he referring to the casein of Halliburton or the casein of Hammarsten? It appears as if "Ceres" assumed that there were two different proteids, casein and caseinogen, present in normal milk. But Hammarsten's casein is essentially the same as the caseinogen of Halliburton, except in name, while Halliburton reserves the word casein for the curd produced with rennet.

I am, Sirs, yours faithfully,

April 10th, 1906. LACTO.

THE WIGAN GUARDIANS AND THE COST OF VACCINATION.

JUDGING from the number of questions asked in the House of Commons and also from the reports of discussions which take place periodically at the meetings of various boards of guardians, it would appear that many Members of Parliament and many members of boards of guardians are desirous of paying inadequately for the work performed by public vaccinators. The legislature having provided for vaccination with calf lymph, the Local Government Board abolished vaccination stations and provided instead that the public vaccinator should visit the child's house and perform the operation with special precautions and should look into the surroundings of the inhabitants of the house, reporting if necessary to the sanitary authority. Much clerical work was added and two or more statutory visits are required. Now we have complaints from certain guardians of the great cost of vaccination, but surely the public cannot expect all the additional work and care for the nominal fee that was formerly paid for the operation performed at appointed vaccination stations. This, however, is what the Wigan board of guardians appears to expect. Ever since the new legislation came into force some member of the board of guardians has found in the cost of vaccination a reason for airing his eloquence. At a recent meeting a proposition was moved by a new member, by way presumably of justifying his existence on the board, to the following effect: "That the Wigan guardians are in favour of early legislation being promoted by the Local Government Board placing vaccination officers entirely under the control of the guardians, and that public vaccination and vaccination officers be paid by salary in lieu of fees, and that the said resolution be sent to the President of the Local Government Board." Dr. M. Benson, who has been a useful member of the board for some time and who is a member of the health committee of the town council, pointed out that the extra work placed on the public vaccinator by the Vaccination Act of 1898 necessitated an increased fee and urged that the public health authority and not the guardians was the proper authority for carrying out vaccination. After further discussion the mover of the original motion altered it, so that it should read as follows: "That the Wigan guardians are in favour of early legislation being promoted by the Local Government Board to transfer vaccination to the public health authorities and that payment of public vaccinators and vaccination officers be by salary in lieu of fees, and that the said resolution be sent to the President of the Local Government Board." This was adopted unanimously.

HOW TO MAKE "HUMANISED" MILK.

To the Editors of THE LANCET.

SIRS,—Will any of your readers kindly give me details of how to make "humanised" milk from ordinary cow's milk? I am not sure of the proper proportions of the added whey to the milk.

I am, Sirs, yours faithfully,

April 17th, 1906. B. (MEDICUS).

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.). St. Mark's (2.30 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (23rd).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. Casual Communications:—Mr. W. H. Dolamore: Two Cysts ? Dentigerous.—Mr. J. G. Turner: Effects of Abscesses arising from Temporary Teeth.—Mr. E. J. M. Phillips: (1) Hypertrophy of the Gums; (2) Dentigerous Cyst.—Mr. N. G. Bennett: Teeth Devoid of Enamel.—Mr. W. J. May: Absorbed Roots.—Mr. W. S. Nowell: Models showing Delayed Eruption of Temporary Teeth following Rickets.

TUESDAY (24th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Paper:—Dr. W. S. Fenwick and Dr. J. P. Parkinson: The Use of an Antistreptococcus Serum in the Treatment of Gonorrhœal Infections and in Certain Cases of Purpura Hæmorrhagica.

WEDNESDAY (25th).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8 P.M. Annual Meeting. Election of Officers for the ensuing year. 8.30 P.M. Adjourned Discussion on Syphilis (resumed by the President, Dr. F. J. Smith). The following, amongst others, are expected to take part:—Dr. T. Shennan, Demonstration of Spirochæta Pallida; Dr. G. F. Still, The Disease as met with in Children; Dr. J. H. Sequeira and Dr. M. Dockrell, Syphilitic Affections of the Skin; Dr. W. J. McC. Ettles, General Treatment.

THURSDAY (26th).—HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Paper:—Dr. G. W. Hill: Artificial Aids to Hearing.—Mr. W. H. C. Greene: Simple Tumours and their Relation to Malignant Disease.

FRIDAY (27th).—BRITISH ELECTROTHERAPEUTIC SOCIETY (11, Chandos-street, Cavendish-square, W.).—8 P.M. Council. 8.30 P.M. Dr. D. Arthur will show the West London Hospital X Ray Table. Paper:—Dr. W. F. Somerville (Glasgow): The Influence of High Frequency Currents on the Surface Temperature of the Human Body (illustrated with lantern slides).

CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Clinical Evening for the Exhibition of Clinical Cases followed by Discussion. Patients in attendance from 8 P.M. to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—11.30 A.M. Dr. H. Wright: Bacteriology. 2.15 P.M. Medical and Surgical Clinics.

WEDNESDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Dr. H. Wright: Clinical Examination of Blood and Urine. 2.15 P.M. Medical and Surgical Clinics. 3 P.M. Mr. Bidwell: Intestinal Surgery.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Demonstration:—Mr. Stuart-Low: Ear.

THURSDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—11.30 A.M. Dr. H. Wright: Bacteriology. 2.15 P.M. Medical and Surgical Clinics.

ROYAL INSTITUTION OF GREAT BRITAIN (Albemarle-street, W.).—5 P.M. Mr. P. C. Mitchell: The Digestive Tract in Birds and Mammals. (Lecture I.)

FRIDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—11.30 A.M. Dr. H. Wright: Bacteriology. 2 P.M. Dr. H. Wright: Clinical Examination of Blood and Urine. 2.15 P.M. Medical and Surgical Clinics. 3 P.M. Mr. Bidwell: Intestinal Surgery.

ROYAL SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—5 P.M. Discussion on the Consumptive at Home (opened by Dr. G. A. Heron). Sir R. D. Powell, Dr. J. E. Squire, and Dr. F. C. Shrubsall are expected to take part in the discussion.

SATURDAY (28th).—ROYAL SANITARY INSTITUTE.—3 P.M. Visit to Mount Vernon Hospital for Consumption at Hampstead.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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We cannot prescribe or recommend practitioners.

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Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 19th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation Varue.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 13	30·10	W.	...	110	70	50	53	58	Fine
" 14	30·36	N.E.	...	95	58	43	47	51	Fine
" 15	30·60	N.	0·08	97	53	44	45	50	Fine
" 16	30·33	S.W.	...	102	65	38	42	46	Fine
" 17	29·91	S.W.	...	99	62	37	46	50	Fine
" 18	29·78	N.E.	0·01	66	49	41	41	43	Overcast
" 19	29·69	N.E.	0·02	66	47	39	38	42	Cloudy

During the week marked copies of the following newspapers have been received:—*Liverpool Daily Post, Lancashire Post, Leicester Mercury, West Hants Observer, Glasgow Citizen, Yorkshire Observer, Leicester Advertiser, Portsmouth Independent, Newcastle Chronicle, Cardiff Mail, Bury Times, Manchester Guardian, Glasgow Herald, Leeds and Yorkshire Post, City Press, Surrey Advertiser, Manchester Chronicle, Bristol Press, &c.*

Communications, Letters, &c., have been received from—

A.—Dr. A. P. Allen, Croydon; A General Practitioner.

B.—Dr. C. B. Barkley, Baltimore; Dr. J. F. Boa, Kildonan; B.; Messrs. Burroughs Wellcome and Co., Lond.; Birkenhead Borough Hospital, Hon. Secretary of; Mr. F. E. Bennett, Margate; Mr. Haydn Brown, Caterham; Dr. Francis T. Bond, Gloucester; Dr. William Bruce, Dingwall; Mr. Albert Benthall, Lond.; Bolingbroke Hospital, Lond., Secretary of the Building Committee of; Mr. W. Berry, Wigan; Dr. D. Bower, Bedford; Birmingham University, Dean of; Dr. D. Burney, Lond.

C.—Dr. George Carpenter, Lond.; Dr. Walter P. Cockle, Lond.; Calcutta, Health Officer of; Messrs. Callard and Bowser, Lond.; Messrs. W. Carling and Co., Hitchin; Dr. J. B. Cleland, Perth, Western Australia; Cumberland Infirmary, Carlisle, Secretary of; Cornwall County Council Sanitary Committee, Truro, Chairman of; Courtenay's Worcester Sauce Syndicate, Worcester; Carlisle Dispensary, Secretary of.

D.—Mr. A. J. Davey, Lond.; *Daily News* Sweated Industries Exhibition, Lond., Committee of; Devonshire Hospital, Buxton, Secretary of.

E.—Dr. E. J. Elliot, Oxford; Dr. G. Eichholz, Lond.

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Letters, each with enclosure, are also acknowledged from—

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D.—Mr. C. C. Duncan, Worcester; *Detroit Medical Journal*, U.S.A., Editor of; Durham County Hospital, Secretary of; D. C.; Dr. T. Domela, Tunis.

E.—E. S. R.

F.—Farringdon General Dispensary, Lond., Secretary of.

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